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ANALYSIS OF THE AIR FORCE'S CLEAN WATER ACT NOTICE OF VIOLATIONS AS A MANAGERIAL TOOL IN ACHIEVING COMPLIANCE

THESIS

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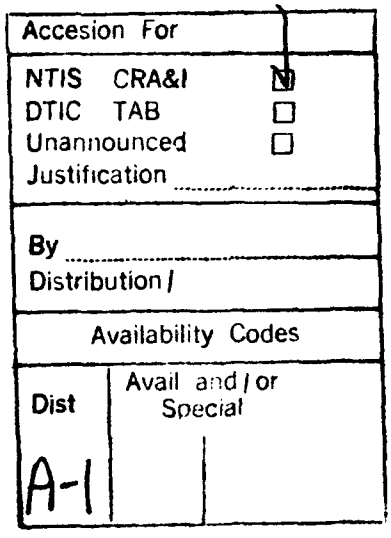

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THESIS

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Abstract

In 1988, the General Accounting Office released the report Water Pollution: Stronger Enforcement Needed to Improve Compliance at Federal Facilities. The report claimed Federal Facilities were in noncompliance of environmental statutes at twice the rate of nonfederal facilities.

The Air Force chain of command, from Chief of Staff to Commander and Chief, emphasize environmental compliance is expected at all Air Force Facilities.

To enhance the Air Force's Clean Water Compliance Program, past noncompliance violations were compiled and an analysis performed assessing the value of the past violation trends as managerial tools in achieving compliance. The database chosen for the analysis was the Clean Water Act Notice of Violations (NOVs) received at Air Force Installations from Fiscal Year 1986 to mid-1994.

The analysis revealed the following about the Air Force's past noncompliance: the most frequently observed violations were limits exceeded, unauthorized discharges, and administrative deficiencies; the majority of violations were not trivial infractions; the amount of NOVs received varied geographically; the varying regulatory agencies'

enforcement policies differed significantly; and the amount of NOVs received varied over time.

Although the research proved trends of past compliance are useful as a managerial tool to improve compliance, it also identified weaknesses in the Air Force's historical violation records. The database should be improved to emphasize consistency, completeness, and accuracy.

ANALYSIS OF THE AIR FORCE'S CLEAN WATER ACT NOTICE OF VIOLATIONS AS A MANAGERIAL TOOL IN ACHIEVING COMPLIANCE

I. Introduction

General Issue

October 1990, Dick Cheney, serving as Secretary of Defense, stated in his Environmental Policy Memorandum "I want the Department of Defense to be the Federal leader in agency environmental compliance and protection" (3:335). The first of Mr. Cheney's four Defense Environmental Goals was to "achieve full and sustained compliance with federal, state, and local environmental laws and regulations" (3:335).

The Secretary of Defense, in 1989, stated in a memorandum to the Secretaries of the military departments:

> We [the Department of Defense] must demonstrate commitment with accountability for responding to the Nation's environmental agenda. I want every command to be an environmental standard by which Federal agencies are judged. (13:1)

General Merrill A. McPeak, Chief of Staff of the Air Force, issued an environmental policy letter in April 1991. One of General McPeak's established goals was to "ensure our present operations comply with all federal, state and local standards. No notices of violation is the measure of merit." (10)

The Air Force's Environmental Quality Policy Directive 32-70 states "achieving and maintaining environmental quality is an essential part of the Air Force mission. The Air Force is committed to ... meeting all environmental standards applicable to its present operation ..." (12:1.1). The policy also requires an Air Force Environmental Quality Program be developed and implemented. The program establishes compliance as one of its four pillars (12:1.3). The directive states "The Air Force will comply with all applicable Federal, State, and local environmental laws and standards" (12:1.3.2).

Despite the policies and goals established, DOD and the other federal agencies are not achieving compliance with the Clean Water Act. In December 1988, the United States General Accounting Office (GAO) published a report, Water Pollution: Stronger Enforcement Needed to Improve Compliance at Federal Facilities. This report assessed 150 major federal facilities for compliance with the Clean Water

Act. The principle findings indicated the following: during any given quarter of fiscal years 1986 and 1987, federal facilities were out of compliance at twice the rate as nonfederal industrial facilities (7:3).

Current compliance data indicates some improvement in federal facility compliance since the 1988 GAO Report; however, federal facilities still consistently demonstrate higher non-compliance rates than private facilities. (6:78).

General McPeak gave the following assessment of the Air Force's environmental program in his 1991 Environmental Policy Letter: "Despite steady improvement in environmental protection, the Air Force must do more, now. We must move past the study stage into the action phase--training, prevention, and clean up." (10)

Specific Problem

In accordance with Air Force Policy Directive 32-70, compliance will be measured at each base and reported through the Major Command (MAJCOM) to the Headquarters U.S. Air Force Civil Engineering Directorate of Environmental Quality (12:A1.1.). Adherence to the environmental compliance policy is assessed by measuring the total number of Open Enforcement Actions compared to the baseline year

(Fiscal Year 1992). This policy, in conjunction with General McPeak's goal of "no notices of violation as the measure of merit" (10), establishes Notices of Violations (NOVs) as an indicator in measuring noncompliance at Air Force Installations.

Even though departments of the federal government have invested billions of dollars annually supporting environmental compliance, NOVs from regulatory agencies have increased rather than decreased over the past few years (4:215).

According to Colonel Peter Walsh, Air Force Director of Environmental Quality, 22 percent of the Air Force's open enforcement actions relate to the Clean Water Act. Colonel Walsh stated the Air Force must concentrate on real issues; focus on fixing the real problems that are damaging to the environment (20).

Mr. Jayant Shah, Headquarters Air Force Environmental Compliance Office, requested an analysis of the causes of Clean Water Act noncompliance based on Notices of Violations received throughout the Air Force. The following is an excerpt from a letter Mr. Shah submitted to The Air Force Institute of Technology suggesting a Clean Water Act NOV analysis as a thesis topic:

" Noncompliance with the NPDES permit requirements continue to be high throughout the Air Force. If timely actions are not taken noncompliance will increase...The Air Force must address deficiencies which can result in increased noncompliance....." (15)

Mr. Myron Anderson, Wastewater Program Manager at Air Force Civil Engineering and Support Agency, is also a proponent for research to be accomplished to determine the root causes of the NOVs the Air Force has received for noncompliance with the Clean Water Act. The information provided from the proposed research would enhance Mr. Anderson in his efforts of programming wastewater projects for the Air Force (1).

Research Objective

The purpose of this research is to review, categorize, and assess the Notice of Violations received at Air Force Bases for noncompliance with the Clean Water Act. An exploratory and descriptive analysis of trends and frequencies of NOVs previously issued against the Air Force should reveal possible key factors of noncompliance within the Air Force's Clean Water Program. Identification of possible problem areas would be beneficial in both planning and maintaining compliance with the Clean Water Act. The

questions to be addressed and answered during the analysis are as follows:

1. What is the trend in the types of violations received by the Air Force?
2. Are the NOVs received by the Air Force polluting the environment or are they issued because of minor infractions of the Clean Water Act?
3. Are certain Air Force Installations more susceptible to receiving NOVs than others because of their location?
4. Do the three different levels of regulatory agencies (Federal, State, or Local) vary in their enforcement policies?
5. Is there any variation in the number of NOVs received over the time period Fiscal Year 1986 to present?

Scope

The set of open enforcement actions assessed is restricted to those NOVs received for violations of the Clean Water Act since 1986.

Bases located on foreign soil often have different regulatory policies and guidance set by the host nations.

In order to provide consistency, this research is confined to NOVs received at Air Forces Bases under jurisdiction of the 10 EPA Regions and the various states delegated authority to issue NPDES permits. The states and territories are listed in Appendix A. The EPA Regions are listed in Appendix B.

II. LITERATURE REVIEW

Overview

Federal Facilities must comply with all environmental statutes to include the Water Pollution Control Act as amended by the Clean Water Act. Federal facilities have not maintained compliance with the Clean Water Act. Key individuals at Air Force Headquarters Environmental Compliance Office believe an analysis of past NOVs will illuminate weaknesses in the Air Force's Clean Water Act Compliance Program.

In order to understand the Air Force's difficulty in maintaining compliance, this literature review will discuss the Clean Water Act to include its goals and objective, history, future, and basic framework. This literature review will also review past studies that indicated federal facilities are in noncompliance at a higher rate than nonfederal facilities.

Purpose of the Clean Water Act

The Clean Water Act's objective is to restore and maintain the chemical, physical and biological integrity of the nation's water (2:155).

The Clean Water Act establishes as national policy and goals (2:155):

1. Achievement of a level of water quality providing for the protection of fish, shellfish, and wildlife; and for recreation in and on the water.
2. Elimination of the discharge of pollutants into surface waters.
3. The prohibiting of discharge of toxic pollutants in toxic amounts.

History of the Clean Water Act

The Clean Water Act is the result of many years of historical regulatory development. Federal law governing the discharge of waste to waterways dates back to the Refuse Act of 1899. Although this early law indirectly governed discharges of waste, it focused more on the protection of navigation rather than the quality of the nation's waterways (Arbuckle: 151). The first major statute to emphasize the control of water pollution was the Federal Water Pollution Control Act (FWPCA) of 1948 (5:1-7). The FWPCA has been amended several times since 1948.

In 1965, the FWPCA was amended to require the states to establish water quality standards applicable to interstate waters and also provided for federal grants for state water pollution control activities (5:1-7). In 1966, the Federal

Water Pollution Control Administration established guidelines on water quality standards (5:1-7).

Although a few states made the water quality approach work, it became apparent by 1970 an effective nationwide approach would require a permit program based on end-of-pipe effluent criteria (2:152). In late 1972, Congress passed legislation establishing the Environmental Protection Agency (EPA) as responsible for setting nationwide effluent standards (2:152). "On the basis of the Act's new provisions, the Federal Government, through the EPA, assumed the dominant role in directing and defining water pollution control problems across the country." (9:9)

The FWPCA amendments of 1972 set up a regulatory framework for controlling water pollution discharges. The amendments abandoned water quality standards as the regulatory approach in favor of standards on an industry-by-industry basis and technology based effluent limitations. The amendments also extended federal jurisdiction to all waters of the United States (5:1-8).

One of the most important aspects of the 1972 amendments is the development of the National Pollution Discharge Elimination System (NPDES) which authorizes the EPA to issue discharge permits. Permitting requires the discharger to maintain a specific level of performance and requires the discharger to report failures to meet the specified levels (2:160).

Although the FWPCA of 1972 contained nearly all of the tools and enforcement mechanisms in today's statues, further changes were required. The 1972 act concentrated on regulating oxygen demanding materials and disregarded the effect toxics had on human life and the environment (2:154). In 1977, the act was amended to focus enforcement on toxic water pollutants (7:10). The emphasis of toxic control described a toxics strategy that is the heart of the Clean Water Act program as it exists today (2:154).

In 1987, the Act was amended again to enhance the EPA's enforcement authority (7:10). The statue governing our nation's waters is commonly referred to today as the Clean Water Act (7:10).

An Overview of the Clean Water Act

The Clean Water Act establishes the authority for the EPA's compliance and enforcement activities (11:1-5). Section 301 of the Clean Water Act, prohibits discharges to waters of the United States without a NPDES permit (5:1-11).

Under Section 308, the EPA has the authority to require the discharge owner or operator to establish and maintain records, submit reports, and maintain monitoring equipment (2:161). The effectiveness of the permit program, in assuring compliance, is very dependent upon the monitoring and data maintenance that are required by the permits

(2:160). Section 308 also provides the EPA with the authority to enter, inspect, and sample water pollutant discharges (5:1-11).

Under Section 309 the EPA is authorized to issue administrative orders and provides for civil and criminal enforcement of the NPDES program (5:1-11).

Section 313 covers State and EPA NPDES permitting of federal facilities (5:1-11).

Sections 401 and 402 describe the procedures for which states assume the responsibility for the NPDES programs and the continuing role the EPA plays in the program (2:156). Section 402 establishes the EPA as the issuing authority of NPDES permits (2:164).

Although a state is required under NPDES to at a minimum meet the federal limitations, Section 510 authorizes a state to set more stringent effluent limitations than required by federal law (5:1-12).

President Clinton's Clean Water Agenda

Currently, water pollution remains high among the public's environmental concerns. A 1993 Times Mirror poll shows 77 percent of the general public believes in higher government control of water pollution (6:iv). The Clinton Administration is asking Congress, in reauthorizing the Clean Water Act, to enter a new era in environmental protection (6:v). One possible amendment that would directly effect DOD would be the expansion of the waiver of

sovereign immunity, establishing a means for federal enforcement against federal facilities. The Clinton Administration is recommending the Clean Water Act be amended to waive the United States' sovereign immunity enabling regulatory agencies to seek penalties for all violations by federal facilities (6:79).

The NPDES Permit Program

The NPDES permit program is established under Section 402 of the Clean Water Act (5:1-11). The act requires every facility discharging wastewater to obtain a permit. A NPDES permit defines the permissible level of discharge into U.S. waters for each individual discharge. In order to avoid violating the Clean Water Act, dischargers must notify authorities about all aspects of anticipated dischargers by filing for an application for a NPDES permit (2:160). Every federal facility engaged in any activity resulting in the discharge of water pollutants is subject to all federal, state, interstate, and local requirements (6:10).

States and U.S. Territories can be delegated administration of the NPDES permit system if their programs are approved by the EPA (11:xx). As of August 1992, 38 states and the Virgin Islands have EPA approved NPDES permit programs. The remaining states and territories do not have approved NPDES programs; the EPA is the issuing authority for these states and territories (2:164). The status of each state's NPDES program is listed in Appendix A. The

NPDES program is managed by 10 EPA Regional Offices plus all states and territories having EPA approved programs. The 10 different EPA regions are listed in Appendix B. Under the NPDES program, the EPA and approved states and territories are required to issue permits, and monitor and enforce compliance (7:2). The Clean Water Act authorizes EPA and delegated NPDES states, upon issuing permits, to set effluent limitations, conditions, and pretreatment standards to be met by permittees and indirect dischargers. Most permits must be renewed and upgraded every 5 years (7:12).

As of March 1988, there were nearly 64,000 active permits issued to industrial, municipal, and federal facilities (6:10-11). Table 1 illustrates the distribution of NPDES permits (for the year 1988) throughout the United States. The EPA classifies facilities issued permits as either minor or major based on potential environmental risk factors such as volume of wastewater and types of pollutants discharged (6:10).

TABLE 1
NUMBER OF ACTIVE NPDES PERMITS AS OF 1988

Type of Facility	Major Permits Issued	Minor Permits Issued	Total Permits Issued
Industrial	3,379	43,794	47,173
Municipal	3,594	11,669	15,263
Federal	145	1,151	1,296
TOTAL	7,118	56,614	63,732

(7:11)

Compliance and Enforcement

EPA and NPDES delegated state regulators are responsible for ensuring permittees are complying with their NPDES permits (7:12). Several methods are used to check compliance with the Clean Water Act. Periodically, the EPA or delegated state regulator is required to perform a compliance inspection; during the inspections, violations are sometimes noted (4:216). The EPA may conduct an inspection wherever there is an existing permit, existing discharge, or probability of a discharge (5:3-7). Inspections can also take place due to complaints by citizens (4:216). Types of records the EPA or state regulator may review during an inspection are sampling and analysis data, monitoring records, lab records, operating records, plant manuals, management records, and pretreatment records (5:3-19).

Noncompliance can also be discovered as a result of the permittee's own records submitted to the NPDES delegated state or EPA as required by the permit (4:216). As stated previously, Section 308 of the Clean Water Act authorizes EPA to require both direct and indirect discharge sources to maintain records, make reports, install and maintain monitoring equipment, and sample effluents (5:3-3). Under the NPDES program, permittees are required to monitor

effluent limitations and perform routine sampling and analysis. The results are reported on standard Discharge Monitoring Reports (5:3-3).

EPA and NPDES delegated states have a number of enforcement options available under the Clean Water Act. Also, the Act authorizes citizens to start civil action to remedy violations (11:205).

In states where EPA is the permitting authority, the EPA maintains the authority to enforce compliance with the Clean Water Act (11:206). In NPDES delegated states, federal authority is partially suspended (the state has the primary jurisdiction); however, the EPA still retains the right to initiate enforcement actions (11:205). Regulators determine whether informal or formal enforcement actions are appropriate for a violation depending upon the severity of the violation, the compliance record of the violator, and other factors (7:14).

Informal actions are taken (regulator's discretion) when a facility is in violation of the Clean Water Act. Informal actions include (but are not limited to) telephone calls, letters, compliance agreements, and notices of violation (7:14).

Compliance agreements are negotiated between the regulating agency and the violator. Compliance agreements

are used primarily by the EPA to enforce requirements at federal facilities. The agreements contain schedule outlines the facilities must meet to return to compliance. Compliance agreements between the EPA and federal facilities are tracked in a similar manner as the formal enforcement actions (7:14).

A notice of violation (NOV) is a letter issued by a regulatory agency notifying a facility that it is in violation of the environmental statute. One main purpose behind the issuance of an NOV is the notice draws the offender's attention to violations the offender may or may not be aware of. The NOV can also clarify to the offender the legal obligations imposed by the law (5:6-6). An NOV usually contains the following elements: identification of the environmental law violated; point source or user to whom the violation is issued; factual basis of the NOV to include, time, date, and evidence of violation; explanation of further action that may be taken; and the name of the official issuing the NOV (5:6-6). An example of an EPA notice of violation, courtesy of the EPA's Clean Water Act Compliance/Enforcement Guidance Manual, is illustrated in Appendix C (5:6-41).

Formal enforcement actions are required when it is determined a facility is expected to be in significant

noncompliance for two consecutive quarters. Formal enforcement actions include administrative orders and judicial action (7:14).

Administrative orders may contain orders to cease violations or specific timetables for the violator to reach compliance (7:14). An administrative order requires compliance and typically contains a schedule for compliance and interim effluent limitations that must be met while the scheduled activities are undertaken (11:207). The EPA may seek civil penalties to enforce administrative penalties. Penalties are divided into 2 different classes. A Class I penalty may not exceed $10,000 per violation and a maximum amount of $25,000. A Class II penalty may not exceed $10,000 per day for each day of violation, and a maximum amount of $125,000 (11:207).

Federal Facilities

Federal facilities are issued permits and monitored for compliance in the same manner as nonfederal facilities; however, how the EPA and states handle enforcement action against federal facilities compared to nonfederal facilities does differ (7:11). Most federal environmental laws do not provide regulatory agencies the same full authority over federal facilities as nonfederal facilities (17:233).

It's EPA policy for regions to negotiate compliance agreements in place of issuing administrative orders when dealing with federal facilities. The EPA does not sue federal facilities, assess penalties for permit violations, or bring judicial suit because it's respecting the position of the Department of Justice that one federal agency cannot sue another (7:15).

Unlike the EPA, states can use their enforcement authority against federal facilities in the same manner as when dealing with nonfederal facilities. States can issue administrative orders and lawsuits against federal facilities (7:62). Most states are reluctant to sue federal facilities for two reasons. The first reason is, the process is very complex since it involves two different government entities. Secondly, state regulators believe they are unlikely to win in court (7:63).

History of Federal Noncompliance

As requested by the Chairman, Subcommittee on Water and Power Resources, House Committee on Interior and Insular Affairs, a General Accounting Office Report was completed in December of 1988. The report, Water Pollution: Stronger Enforcement Needed to Improve Compliance at Federal Facilities, assessed the following: extent major federal

facilities complied with NPDES, factors affecting federal facilities capability to comply, and effectiveness of the NPDES delegated states and EPA on monitoring and enforcing federal facilities compliance with NPDES (7:2).

During Fiscal Years 1986 and 1987, 150 major federal facilities were assessed. Of the 150 facilities, 23 were owned by the Air Force (7:16).

Federal facilities' noncompliance was twice that of private industrial facilities. A comparison of the percentage of major federal facilities not in compliance against the percentage of Industrial Facilities not in compliance is shown in Table 2.

TABLE 2

COMPARISON OF PERCENTAGES OF MAJOR FEDERAL AND INDUSTRIAL FACILITIES IN SIGNIFICANT NONCOMPLIANCE AND UNDER ENFORCEMENT ORDERS DURING FY86 AND FY87.

Fiscal Year/Quarter	Percentage of Industrial Facilities in Noncompliance	Percentage of Federal Facilities in Noncompliance
FY86/1st Quarter	9	17
FY86/2nd Quarter	9	18
FY86/3rd Quarter	10	23
FY86/4th Quarter	9	18
FY86/1st Quarter	9	19
FY87/2nd Quarter	10	20
FY87/3rd Quarter	12	23
FY87/4th Quarter	9	23

(7:24)

The length of each facilities' noncompliance was also addressed. Forty-five percent of the federal facilities studied in the GAO Report were out of compliance at least one quarter in the 2 year period (7:25). Over 40% of all violating federal facilities were in noncompliance in excess of a year. Table 3 illustrates, for each federal agency studied, the average number of quarters a noncompliant facility was of compliance.

TABLE 3
AVERAGE TIME IN NONCOMPLIANCE PER NONCOMPLIANT FACILITY

Agency	Average Number of Quarters in Noncompliance Per Noncompliance Facility
Navy	3.5
Energy	3.8
Air Force	4.4
Army	3.8
Tennessee Valley Authority	2.0
Marine Corps	4.0
Interior	1.3

(7:27)

The General Accounting Office also addressed the types of violations which resulted in the noncompliance. The majority of the federal facilities were in noncompliance because of effluent violations. Inadvertent discharges into the treatment process such as spills, accidental discharges,

oil runoff entering the sewers, and increased suspended solids caused by heavy rainfall were the most frequent violations. The second most frequent violation occurred due to malfunctioning equipment (7:29). The third most common cause of violations was ineffective performance of the treatment system. Other causes identified were effluent bypass during cleaning or repairing of the system, improper sampling points, and laboratory errors (7:30).

Prior to the General Accounting Office's Report, regulators, agencies, and facility officials attributed compliance problems to the following: the federal budget process, procurement regulations and procedures, facility age, facility complexity, and inadequate staffing. The General Accounting Offices' Report determined the priority given environmental compliance at federal facilities appears to be the most important factor in achieving compliance.

In the Logistic Management Institutes' analysis of an anonymous federal department's history of NOVs, it was determined the department lacked a consistent data collection system. The department could not accurately assess what systemic changes were required to prevent recurrence because it really did not know what type NOVs it had received (4:227).

Conclusion

As shown in the GAO Report and LMI's study, an analysis into past violations against environmental statutes can determine weaknesses in an environmental compliance program. As Mr. Kelly stated in his article, Trends in the Enforcement of Environmental Laws:

> Companies can decrease their exposure and mitigate their penalties through training and compliance programs. Corporations that ignore the regulations and who are oblivious to the enforcement trends may discover the 1990s' minefields the hard way. (8:12,38)

The next chapter will focus on the methodology used to perform an analysis on the Air Force's past Clean Water Act violations.

III. Methodology

Overview

This chapter discusses the methodology used to select the target populations that provided the database for the analysis. Also discussed are the methods used to gather and categorize data, and perform an analysis on Air Force noncompliance with the Clean Water Act. In general, the chapter describes the approaches used to answer the following questions:

1. What is the trend in the type of violations received by the Air Force?
2. Are the NOVs received by the Air Force polluting the environment or are they issued because of minor infractions of the Clean Water Act?
3. Are certain Air Force Installations more susceptible to receiving NOVs than others because of their location?
4. Do the three different levels of regulatory agencies (Federal, State, or Local) vary in their enforcement policies?
5. Is there any variation in the number of NOVs received over the time period from Fiscal Year 1986 to present?

Specific Problem

As stated earlier by Mr. Jayant Shah, Air Force noncompliance with the NPDES permit requirements continues to be high. An analysis of past noncompliance is required to determine possible deficiencies in the Air Force's Clean Water Act Compliance Program (16).

Target Population

In order to perform an analysis upon the Air Forces noncompliance with the Clean Water Act it was necessary to collect noncompliance data. As stated earlier, compliance is measured by the lack of Open Enforcement Actions issued against Air Force Installations. Notice of Violations issued against all Air Force Installations under jurisdiction of the 10 EPA regions or states delegated NPDES programs (excluding territories) were gathered and an exploratory and descriptive analysis performed.

The Air Force Regional Compliance Offices maintain historical records on all NOVs issued against Air Force Installations (16). The three different Regional Compliance Offices, and the EPA Regions each encompasses, are shown in Appendix D. Although other Open Enforcement Actions such as Notices of Deficiency, Warning Letters, and Action Orders exist, they were not incorporated into this analysis. Only

NOVs were used because, as previously stated, the absences of NOVs have been established within the Air Force as a measure of merit (10).

Data Collection

Each Regional Compliance Office (Eastern, Central, and Western) were requested to forward all Clean Water Act NOVs issued against Air Force Installations since Fiscal Year 1986. Appendix D lists each Regional Compliance Office's points of contact (POCs). Since 1990, the Regional Compliance Offices have been required to maintain all NOVs issued against each Air Force Installation. Data prior to 1990, would have been maintained by the Regional Compliance Offices' predecessors, the Air Force Regional Civil Engineering Offices. The pre-1990 historical records of NOVs were transferred to the Air Force's Regional Compliance Offices upon termination of the Air Force Regional Civil Engineering Offices (19).

Additionally, a questionnaire was electronically mailed to several Air Force environmental shops at stateside bases. The questionnaire accessed those shops connected to the Air Force's Work Information Management System (WIMS). A list of the Air Force Bases contacted by electronic mail is contained in Appendix E. The questionnaire requested

information on each bases' historical data concerning Clean Water Act NOVs issued from Fiscal Year 1986 to present. This second set of data was used with the sole purpose to corroborate the information obtained from the Regional Compliance Offices. If the information obtained from the Regional Compliance Offices matched the information obtained from the environmental shops, it was assumed the information used in the analysis was accurate. The accuracy of the information used within the analysis directly reflects on the validity of the research findings.

Information Provided by Regional Compliance Offices

The Air Force Regional Compliance Offices were very helpful and provided all the NOVs on file in each of the three offices. The information was provided in what the Regional Compliance Offices refer to as long text NOV documents. Although the three different Regional Compliance Offices used different formats in their long text NOV documents, for the most part the information listed was similar. The long text listed the date of issuance, statute violated, issuing agency, and the violation(s). Most of the long text NOV documents listed the status of the NOV (open or closed) and sporadically listed the recommended, scheduled, or actual fix. Some of the long text NOV

documents received from the Regional Compliance Offices lacked one or two of the entries. All of the NOVs received were used in the analysis (regardless of completeness) as long as they were compatible with the scope of the analysis. The completeness of the data was somewhat questionable. The Regional Compliance Offices have only been required to maintain records of NOVs since 1990. Some pre-1990 NOVs may not be on record at the Regional Compliance Offices and therefore not incorporated within this research. Also the information provided by the Regional Compliance Offices was only as accurate as the information provided to them from the various Air Force Installations and Major Commands. A summary of the NOVs provided by the Regional Compliance Offices and used in the analysis is shown in Appendix F.

A number of violations provided by the Regional Compliance Offices were not used in the analysis since they did not fit into the scope of the research. Many of these discarded violations were not identified as NOVs; many were labeled as warning letters, administrative orders, inspection results and so forth. Some were discarded because the NOVs were issued against contractor owned and operated plants. As stated in Chapter I, the scope of the research was limited to NOVs issued against Air Force Installations.

Analysis using Data from Regional Compliance Offices

Because this was a descriptive and exploratory analysis to determine the value of using NOVs as a managerial tool to prevent noncompliance against the Clean Water Act, data analysis was limited to reporting the trends of the historical data gathered. The objective was to determine the significance of the trends in the data and identify problem areas.

The analysis addressed trends in: the types of violations that caused the NOV, the pollution potential of the violations, the regions where the violations occurred, the regulatory agencies that issued the NOVs, and the dates of the NOVs. The foundation for the types of analysis performed was derived from the Logistic Management Institutes analysis of NOVs received by to an unnamed department of the federal government (4:220-225).

Analysis by Reason Codes

This portion of the analysis describes the methodology employed to answer the question of what is the trend in the types of violations received by the Air Force. The intent was to enhance the Air Force's capability of identifying its compliance problems by categorizing the types of violations

(spills, late reports, dumping), and determining each type of violation's frequency of recurrence. As Mr. Shah from the Air Force Headquarters Environmental Staff stated, the Air Force needs to categorize the types of Clean Water Act NOVs it is receiving, only then can needed actions and implementation schedules be developed to remedy the increased noncompliance (15). Mr. Shah suggested the following categories of noncompliance; inadequate facilities, stringent standards, lack of training and guidance, operations and maintenance, and administrative deficiencies (15). After reviewing the long text NOV documents from the Regional Compliance Offices it became clear the suggested categories did not match the information provided. However, some of the reason codes used in Logistic Management Institute's analysis did fit the information provided by the Regional Compliance Offices. Therefore, Mr. Shah's suggestions and the violation reason codes used in Logistic Management Institute's analysis (4:225-229), were combined.

Table 4 defines the violation categories used in the analysis. The NOVs obtained from the Regional Compliance Offices were categorized by violation categories. The violation category codes (10, 20, ...70) are used in Appendix F to identify the types of violations received.

TABLE 4
VIOLATION CATEGORIES

Categories	Definition
10--Exceedances	Exceeds the limits as specified by either the Clean Water Act or NPDES permit. (Examples--pH limits exceeded or Total Suspended Solids limits exceeded)
20--Technical	Technical problems exist interfering with monitoring or sampling as required by the Clean Water Act or NPDES permit. (Examples--Lab uncertified, or Sampling or Monitoring not being accomplished)
30--Personnel	Problems exist with Waste Water Treatment Plant personnel. (Example--Waste Water Treatment Plant personnel not certified)
40--Operational	Operational problems exist in operation of Waste Water Treatment Plant. (Examples--Overflows or Bypasses)
50--Unauthorized Discharges	Unauthorized discharge occurred. (Examples--Leaks, Spills, or Dumping)
60--Facility or Equipment	Inadequate or deficient facilities or equipment. (Examples--inadequate fencing to prevent erosion or inadequate stormwater retention area)
70--Managerial or Administrative	Managerial or administrative inadequacies. (Examples--reports not submitted, inadequate reports, failure to notify authorities of a spill, or not adhering to permit requirements)

The percentages of NOVs received per violation category (Exceedance, Technical, Personnel, Operational, Unauthorized Discharge, Facility or Equipment, or Managerial or

Administrative) were compared to determine if the frequency of occurrence revealed trends within the Air Force history of noncompliance.

Analysis by Pollution Potential

The procedure to determine whether the NOVs received by the Air Force polluted the environment or were issued because of minor infractions of the Clean Water Act is described in this section of the analysis.

Are the Air Force violations against the Clean Water Act dangerous to the environment or are they merely paperwork violations (commonly referred to as not dotting the i's and crossing the t's)?

The importance of pollution potential can not be overstated. Part of the EPA's Enforcement Four Year Strategic Plan: Non-Traditional Enforcement for the 1990s is to target compliance. The EPA's Science Advisory Board believes the EPA should target efforts on the opportunities to reduce environmental risks. Those facilities with serious environmental risks (pollution releases of certain toxins) will be targeted for inspection, enforcement, and substantial fines and penalties (14:209-210).

To perform this segment of the analysis, the NOVs were divided by whether the violation resulted in pollution

entering the environment or if the incident created a risk of pollution entering the environment. For instance, a violation issued because a chemical was dumped into a sewage drainage system almost certainly polluted the environment. The Logistic Management Institute used the terminology that such a violation caused direct pollution releases (4:224). A violation issued because a discharge monitoring report was late does not indicate (with certainty) pollution entered the environment; however, it does indicate the risk of pollution being allowed to enter the environment (unnoticed) is higher. Again using Logistic Management Institute terminology, a violation of this sort would be labeled a pollution risk (4:224).

Table 5 describes the two categories used in this analysis for pollution potential. The abbreviations of DPR (Direct Pollution Release), and PR (Pollution Risk) are used in Appendix F to identify the pollution potential of the NOVs.

The percentage of NOVs received in the Direct Pollution Release Category were compared to the percentage of NOVs received in the Pollution Risk Category. The comparison revealed the pollution potential of violations the Air Force's had previously received.

TABLE 5
POLLUTION POTENTIAL CATEGORIES

Categories	Definition
DPR--Direct Pollution Release	Due to a violation of the Clean Water Act pollution was released into environment. (Examples--Spills, Overflows, Exceedances)
PR--Pollution Risk	Due to violation of the Clean Water Act there is the risk of pollution. (Examples--no monitoring, reports not submitted)

Analysis by Region

The method to determine whether certain regions or states are more susceptible to receiving violations than others is depicted in this section.

The EPA plans to target for compliance areas where there exist a sensitive ecosystem such as the Great Lakes or Chesapeake Bay. In its Enforcement Four Year Strategic Plan: Non-Traditional Enforcement for the 1990s, the EPA intends to target its scarce enforcement resources using geographic criteria to protect critical areas (14:210-211).

The Federal Environmental Protection Agency (EPA) delegates its regulatory responsibility to the 10 various EPA Regions. Each EPA Region is assigned a varying number of states; a breakdown of the 10 EPA Regions and the states assigned to each is located in Appendix B.

The analysis entailed comparing each of the 10 different EPA Regions' percentage of NOVs received against its percentage of bases. To accomplish the analysis, the information derived from each NOV was divided into the 10 different EPA Regions. A count of each region's NOVs was performed to determine: the percentage of bases located within each region, the percentage of NOVs received in each region, and the average number of NOVs received per base in each region.

The information provided by the Regional Compliance Offices was insufficient to provide exact answers to whether certain bases received excess NOVs exclusively because of their location or jurisdiction; however, the information provided indicators of potential problem areas.

An analysis on the number of violations issued per EPA Region identified any significance of the various regions' differing approaches to issuing a NOV. The analysis determined if bases within certain EPA regions had higher incidences of NOVs than others. Examples of concern included the bases located in environmental sensitive locations, such as California or Florida, possibly having higher or lower incidences of NOVs than the average base (4:222).

Analysis by Jurisdiction

To determine whether the three different levels of regulatory agencies (Federal, State, or Local) varied in their enforcement policies, the frequency of occurrence for issuing an NOV was checked for each regulatory agency.

NOVs were issued by either the EPA, the state, or a local regulatory agency. A significant imbalance among the NOVs issued by the varying agencies implied a problem existed in the relationship between the Air Force Installation and the applicable regulatory agency.

The information obtained from the summary of NOVs listed in Appendix F, was categorized as follows: regulatory agency, number of NOVs issued per agency, and percentage of NOVs each agency issued. The percentages were compared and the agencies' trends in enforcement were determined.

Analysis by Date

The final step in the analysis of the Regional Compliance Offices' NOVs was to determine if there existed a variation in the number of NOVs received over the time period of FY 86 to present. The procedure used to perform this part of the analysis is described in this section.

Enforcement of environmental statutes have increased since 1981 and there is every indication the trend will

continue into the 1990s (14:207). The EPA's enforcement activities were at record levels for 1988 through 1990 and the EPA intends to continue to meet the publics' demand for environmental and public health protection (14:207-208).

The NOVs obtained from the Regional Compliance Offices were divided into the dates (by fiscal year and quarter) each NOV was issued. The frequency of occurrence for each quarter was documented on to a chart. The trends displayed in the graph determined the significance of the analysis.

Information Provided by Environmental Shops

As stated earlier, a second set of data was gathered from an electronically mailed questionnaire sent to 78 Air Force environmental shops. The questionnaire asked the base level environmental staffs to lists the NOVs issued against their base for violation of the Clean Water Act from Fiscal Year 1986 to present.

Seventeen bases responded to the questionnaire. The information provided for each NOV included: the date the NOV was issued, the issuing regulatory agency, the base receiving the NOV, and a description of the violation. This second set of data was used exclusively to verify the information received from the Regional Compliance Offices.

Corroboration of the Data

Mr. Tye, from the Western Regional Compliance Office, stated that the NOVs maintained at their office were not received directly from the regulatory agencies. The information was relayed to the Regional Compliance Offices from the bases and the Air Force's Major Commands. Mr. Tye also stated that records concerning NOVs received prior to 1990 might not be complete since the Regional Compliance Offices were not directly responsible for maintaining historical records of NOVs until 1990. (19)

To verify the accuracy of the Regional Compliance Offices' database of NOVs, a comparison to the NOVs received from the 17 environmental shops was accomplished. The similarity between the NOVs received at the 17 bases according to the Regional Compliance Offices and the NOVs received at the 17 bases according to the bases' environmental shops were compared. The similarities were rated on a scale of 0 percent (no match) to 100 percent (complete match). The combined average of the rates determined the accuracy of the information used in the analysis. For example if the information from the questionnaire matched the Regional Compliance Offices information 90 percent of the time, the assumption of an accurate database would be verified.

Conclusion

The next chapter is the heart of the research. Chapter IV will report the finding of the analysis.

IV. Findings

Overview

This chapter presents the findings obtained from the analysis of NOVs issued against Air Force Installations due to violations of the Clean Water Act. The information was gathered from two different sources. The first set of NOVs was provided by the three Air Force Regional Compliance Offices listed in Appendix B. This first set of NOVs was used in performing the analysis. The second set of NOVs was provided by environmental shops at various Air Force Installations. This second set was used only to validate the accuracy of the set of NOVs received from the Regional Compliance Offices.

Information Provided by Regional Compliance Offices

A summary of the NOVs provided by the Regional Compliance Offices and used in the analysis is shown in Appendix F.

Analysis by Reason Codes and Pollution Potential

The analysis by reason codes and the analysis of pollution potential were accomplished simultaneously. As established in Chapter III, one portion of the analysis dealt with identifying the reason each NOV was issued and

its pollution potential. By answering the question, what is the trend in the type of violations received by the Air Force, possible weaknesses in the Air Force's compliance program were identified. The result of answering whether the past violations polluted the environment or were minor infractions of the Clean Water Act, identified the severity of violations occurring in the Air Force.

Each NOV obtained from the Regional Compliance Offices was assigned the violation and pollution potential categories outlined in Tables 4 and 5 from Chapter III; the frequency of each type of violation and the violation's pollution potential was counted and compared. Table 6 summarizes the distribution of NOVs by violation and pollution potential.

TABLE 6
DISTRIBUTION OF NOVS BY VIOLATION CATEGORY AND POTENTIAL RISK OF POLLUTION

Category	Number of NOVs	Percent (%) of NOVs
10--Exceedances	74	56
20--Technical	10	8
30--Personnel	1	1
40--Operational	3	2
50--Discharges	20	15
60--Facility/Equipment	4	3
70--Administrative	29	22
Direct Pollution Release	96	73
Pollution Risk	35	27

Some of the 131 NOVs received from the Regional Compliance Offices showed numerous reasons for the NOV being issued. In such an incident, the NOV were assigned a separate violation category number for each reason. An example is NOV #78 (from Appendix F); NOV #78 was issued because limits were exceeded and the base neglected to notify the appropriate authorities. In this case the NOV was assigned violation codes of 20 and 70. Because of multiple violation codes, the total percentage assigned the violation codes exceeds 100 percent.

The categories identifying whether the NOVs indicated pollution or pollution risk totaled exactly 100 percent because an NOV is either a pollution indicator or a pollution risk, not both. Again, NOV #78 from Appendix F is used as an example. The category 70 violation (failure to notify authorities), by itself, would have been listed as a pollution risk; however, the category 10 (limit exceeded) determined the violation was a direct pollution release.

As shown in Table 6, the majority of the NOVs were issued because limits were exceeded (violation category 10). Seventy-four NOVs (56 percent of the 131 NOVs) listed exceeding limits as the reason the NOV was issued. The following were the types of limits exceeded: Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD),

Chemical Oxygen Demand (COD), Total Toxic Organic (TTO), Fecal Coliform, Silver, Iron, Copper, Lead, Oil/Grease, Nitrogen, Zinc, Phenol, Toluene, Benzene, Chromium, Trichloroethane, Carbon Tetrachloride, Ammonia, pH, Chlorine Residual, and Naphthalene. The seriousness of category 10 violations can not be overstated; in many cases the limits exceeded included toxins.

Unfortunately, the long text NOV documents provided by the Regional Compliance Offices usually listed only that limits were exceeded and sometimes the chemical, toxin, standard, or organism which exceeded the limits. Rarely did the long text NOV documents explain why the exceedance occurred. Speculation can only be used to determine causes of exceedance such as: inadequate equipment or facilities, too stringent of standards, or human error. It would be very beneficial in an analysis to know this information as this would create a more in-depth study. In all cases, category 10 violations were considered direct pollution releases.

Violation Category 70, Managerial or Administrative Inadequacies, received the second largest amount of NOVs. Of the 131 NOVs, 22 percent fell into this category. The various reasons behind the category 70 violations were as follows: failure to notify the appropriate authorities of a

spill or exceedance, failure to submit (or timely submit) complete plans or required reports, failure to perform underground storage tank leak investigations, failure to comply with submitted construction plans, and failure to obtain construction permits. A category 70 violation, on its own, would rarely be categorized as causing (with certainty) a pollution release. In most cases, a category 70 violation indicated a potential to increase the risk of pollution entering the environment.

The third ranking violation category was violation category 50, Unauthorized Discharges. An unauthorized discharge occurred in 20 of the NOVs (15 percent). In every NOV assigned a violation category 50, a direct pollution release occurred. NOVs were assigned violation category 50 for unauthorized discharges of: petroleum products, steam, cooling water, ash, coal pile runoff, sediment, or detergents. Category 50 was also assigned for spills from: underground storage tanks, silver wastewater, washrack wastewater, or petroleum.

Violation category 20, Technical Violations, ranked fourth in quantity. Eight percent of the NOVs listed a problem with sampling, monitoring, or laboratory work. The violations were caused by either failure to properly monitor, failure to properly sample, lab violations, or lab

not certified. Similarly to category violation 70, category 20 (by itself) rarely resulted in pollution entering the environment. Category 20 was always listed as increasing the risk of a pollution entering the environment.

The remaining categories each received less than four percent of the NOVs. Violation category 30 received only one NOV; one installation had uncertified Waste Water Treatment Plant workers. This NOV was listed as a pollution risk.

Violation category 40 received three NOVs; 1 NOV cited an overflow, and the other 2 were described solely as operation deficiencies. It was unclear with the latter two NOVs if they caused a direct pollution release. Because the description on the long text NOV document simply stated operational deficiencies, the assumption made was pollution releases did not occur. Again, the analysis might have been more in-depth if an additional layer of information on the operational deficiencies was provided in the long text NOV documents.

Category 60, NOVs caused by a facility or equipment deficiency, totaled 3 percent. The reasons for the NOVs ranged from not maintaining the slopes of stormwater retention area, inadequate backflow protection, and equipment not installed. In each of the instances an

increase of risk of polluting occurred. One of the NOVs listed inadequate silt fencing as the reason the NOV was issued. The NOV also cited unauthorized dumping. Even though the inadequate silt fencing had risk potential, the unauthorized dumping resulted in the NOV being categorized as a definite polluter to the environment.

In summary, the analysis showed 73 percent of the NOVs caused direct pollution releases. From this analysis, it appears the majority of the Air Force's Clean Water Act NOVs are serious and cause pollution. The analysis also illustrates the real weaknesses in Air Force's program are not in the Facility or Equipment, Technical, or Personnel categories.

In summary, the Air Force should concentrate its resources on eliminating the most serious and most frequent violations. The violations causing pollution releases (exceeding limits and unauthorized discharges) should be tackled first. The managerial and administrative violations should also be addressed since they were the second largest quantity of violations encountered.

Analysis by Region and Jurisdiction

Two issues were answered in this portion of the analysis; whether certain regions or states were more

susceptible to receiving a violation than others because of location and if the regulatory agencies (EPA, state, and local) varied significantly in their enforcement policies. This portion of the analysis used only the data submitted by the Regional Compliance Offices (summarized in Appendix F). The distribution of NOVs (by the ten different EPA Regions) is displayed in Table 7.

Table 7 also shows: the number and percentage of bases located within each EPA Region, the number and percentage of NOVs received per EPA Region, and the average number of NOVs each EPA Region received. The information provided by the Regional Compliance Offices was insufficient to prove certain bases received excess NOVs exclusively because of their location or jurisdiction; however, the information provided indicators of potential problem areas.

A key indicator in Table 7 is the differences between the percentage of NOVs received in a region and the percentage of installations under the region's jurisdiction. The assumption was made that a base's noncompliance is fairly average if the two percentages are relatively equal.

An analysis of Table 7 suggested the regions the Air Force might need to be concerned with are EPA Regions II, III, V, VII and VIII. Regions II, VII, and VIII only have a slightly higher proportion of NOVs per region compared to

bases per region their jurisdiction. The bases in Regions II, VII, and VIII provided indications of increased susceptibility due to varying locations. Regions III and V provided more crucial indications since each had significantly higher percentages of NOVs per region than bases per region. For instance, EPA Region III contained only 4 percent of the 95 bases used in this analysis; however its percentage of NOVs received was 20 percent. EPA Region III received more than 5 times its share of NOVs.

TABLE 7
DISTRIBUTION OF NOVS AND BASES IN THE 10 EPA REGIONS

EPA Region	Bases per Region	Percentage of Bases per Region	NOVs per Region	Percentage of NOVs per Region	Average Number of NOVs per Base
I	3	3	3	2	1.00
II	3	3	6	5	2.00
III	4	4	26	20	6.50
IV	20	21	19	15	0.95
V	6	6	14	11	2.33
VI	20	21	17	13	0.85
VII	3	3	6	5	2.00
VIII	11	12	20	15	1.82
IX	17	18	13	10	0.76
X	8	8	7	5	0.88
TOTALS	95	100	131	100	1.38

To perform a more in-depth look at the regions of concern it was helpful to look at each region's distribution

of NOVs. Another key factor from Table 7 was used in this further analysis; 1.38 was the average number of NOVs received per base. When an individual base received a significantly higher number of NOVs than the average, a problem area existed indicating either the regulatory agency or the base differed in its enforcement or compliance programs. An example of a regulatory agency having different enforcement policies resulting in a high number of NOVs issued, is given in Lieutenant Colonel Swenson's article, Negotiating with Regulators: A Practical Guide. Lieutenant Colonel Swenson maintains some regulators, in their desires to do what they believe is best for the environment, require enforcement beyond what is legally required (18:56). In this case, the regulatory agency employing the regulator enforces stricter standards. Lieutenant Colonel Swenson's article also gives an example of how an Air Force Installation might receive large quantities of NOVs because of an abnormality in its compliance program. An Air Force Installation which blindly claims innocence when issued a NOV undermines its own credibility and increases the determination of the regulatory agency to penalize the installation (18:52).

EPA Region II received 5 percent of the NOVs and had only 3 percent of the bases. While a two percent difference

may not be significant, the distribution of NOVs received for Region II were still analyzed. Table 8 displays the NOV distribution for EPA Region II.

TABLE 8
NOV DISTRIBUTION OF EPA REGION II

Base	State	# of NOVs	EPA	State	Local
McQuire	New Jersey	5	1	4	
Griffis	New York	1		1	
Plattsburg	New York	0			

As shown in Table 8, only McQuire Air Force Base received more than the average number (1.38) of NOVs. McQuire Air Force Base is located in the state of New Jersey; New Jersey does have its own approved NPDES program and is delegated NPDES responsibility by the EPA (11:275). The area of concern for the Air Force was narrowed down to the state of New Jersey or a local regulatory agency. Since four of the five NOVs were issued by the state and none by a local regulatory agency, the emphasis is placed on determining if McQuire has a weakness in its compliance program or New Jersey has more stringent standards than the average state.

EPA Region III consist of 4 bases receiving 26 NOVs. The percentage of bases located in this region was 4 percent

yet it received 20 percent of the NOVs. As stated earlier, EPA Region III received five times its share of the NOVs. Table 9 illustrates the distribution of NOVs issued in Region III. The table is used to determine if any further importance can be placed on the significance of an installation's location.

TABLE 9
NOV DISTRIBUTION OF EPA REGION III

Base	State	# of NOVs	EPA	State	Local
Bolling	District of Columbia	1		1	
Dover	Delaware	0			
Andrews	Maryland	13		13	
Langley	Virginia	12		12	

Only two of the bases in this region were in excess of the average of 1.38 NOVs. One of the bases in excess of the average was located in Maryland and the other in Virginia; both states have their own approved NPDES programs (11:272-279). Since these two bases have received the second and third highest amount of NOVs out of the 95 bases, this region merits serious concern. The Air Force should consider a study to determine if either EPA Region III or the states involved (Virginia and Maryland) have any

peculiarities in their NPDES programs, or if Langley Air Force Base or Andrews Air Force Base have weaknesses in their Clean Water Act compliance programs. The states of Virginia and Maryland might have very sensitive environmental issues warranting extreme or harsh inspections and environmental enforcement programs. The working relationship between the bases and the varying regulatory agencies might also account for the significant disproportion of NOVs received at both Langley and Andrews Air Force Bases.

EPA Region V also showed an increase in the percentage of NOVs in comparison to the percentage of bases located within its jurisdiction. The percentage of NOVs was almost double the percentage of bases. Table 10, lists EPA Region V's distribution of Clean Water Act NOVs.

TABLE 10
NOV DISTRIBUTION OF EPA REGION V

Base	State	# of NOVs	EPA	State	Local
Chanute	Illinois	0			
Scott	Illinois	0			
Grissom	Indiana	0			
K.I. Sawyer	Michigan	0			
Wurtsmith	Michigan	0			
Wright Patterson	Ohio	14		1	13

As shown in the preceding table, five of the six bases located in Region V received no NOVs. The only base to receive Clean Water Act NOVs was Wright Patterson Air Force Base located in Ohio. Wright Patterson Air Force Base also received the highest number of NOVs out of the 95 bases in the analysis. Since three out of the four states apparently were in compliance with EPA Region V's NPDES program, the problem was assumed be more localized than the federal level. The state of Ohio does have its own approved NPDES program; however, 13 of the 14 NOVs were issued by a local regulatory agency (11:272-279). In this case, the presumed significance of a regulatory agencies having very stringent standards was focused on the local regulatory agency having jurisdiction over Wright Patterson Air Force Base. Again, since Wright Patterson Air Force Base received the highest number of NOVs (out of the 95 bases), the Air Force should investigate Wright Patterson Air Force Base to determine any deficiencies within the base's compliance program. The investigation should also determine if any special circumstances at the base or the surrounding area warrants the number of NOVs issued.

EPA Region VII was very similar to EPA Region II. Both bases had a two percent higher rate of NOVs in comparison to

the percentage of bases under their jurisdictions. As stated earlier in the analysis of EPA Region II, a two percent difference may not merit an enormous amount of attention; however, EPA Region VII still received a higher proportion of NOVs so an analysis was performed. Table 11 illustrates EPA Region VII's distribution of NOVs.

TABLE 11
NOV DISTRIBUTION OF EPA REGION VII

Base	State	# of NOVs	EPA	State	Local
McConnell	Kansas	4			4
Whiteman	Missouri	1		1	
Offutt	Nebraska	1		1	

As displayed in Table 11, two of the three installations located in Region VII received only one NOV each. McConnell Air Force Base was the only installation to receive in excess of the average of 1.38 NOVs per base. McConnell's NOVs were all issued by a local regulatory agency. The emphasis of importance in this particular region would be directed at either the local regulatory agency or McConnell Air Force Base.

The last region to have a higher percentage of NOVs in comparison to bases is EPA Region VIII. This region

consisted of 12 percent of the bases while receiving 15 percent of the NOVs. Again, the difference between the percentages was not large. The distribution of EPA Region VIII's NOVs is illustrated in Table 12.

TABLE 12
NOV DISTRIBUTION OF EPA REGION VIII

Base	State	# of NOVs	EPA	State	Local
Air Force Academy	Colorado	0			
Cheyenne Mountain	Colorado	1		1	
Falcon	Colorado	1		1	
Lowery	Colorado	0			
Peterson	Colorado	0			
Malmstrom	Montana	0			
Minot	North Dakota	0			
Ellsworth	South Dakota	3	2	1	
Grand Forks	South Dakota	0			
Hill	Utah	11			11
F.E. Warren	Wyoming	4		4	

Over half the bases under the jurisdiction of EPA Region VIII received no Clean Water Act NOVs. The three percent difference in NOVs in the region compared to bases in the region was not as significant as the 16 percent difference encountered in EPA Region III; however, the amount of NOVs received by Hill Air Force Base did merit concern. Hill received the fourth highest amount of NOVs of the 95 bases. Hill Air Force Base is located in the State

of Utah; Utah also has its own approved NPDES program (11:272-279). All of Hill's 11 NOVs were issued by a local regulatory agency. Again, the significance of location is narrowed from an EPA Region to a local regulatory agency. Since Hill's amount of NOVs received was high, the Air Force should focus attention to the base and the local regulatory agency. As stated previously, there exist a difference in either the regulatory agencies' enforcement program or Hill's compliance program.

So far the emphasis of the analysis has been on the negative aspect of receiving high proportions of NOVs. The significance of areas receiving low percentages of NOVs should not be overlooked. For example, EPA Region IV had 21 percent of the bases yet received only 13 percent of the NOVs. An in-depth look into EPA Regions IV, VI, IX and X may provide information that would enhance the Air Force's Clean Water Act Compliance Program.

As displayed in the preceding tables, the rate of issuance per regulatory agency was not consistent throughout the regions. Regulatory agencies operate differently, resulting in a disproportion of NOVs being received at various bases.

Just as location can play a significant factor in a bases' susceptibility in receiving NOVs, so can the

regulatory agencies. Table 13 shows the distribution of NOVs by regulatory agencies.

TABLE 13
NOVS BY REGULATORY AGENCY

Agency	Number of NOVs	Percentage of NOVs
EPA	12	9
State	46	35
Local	73	56
TOTALS	131	100

Table 13 indicates the majority (56 percent) of the NOVs were issued by local regulatory agencies. The state regulatory agencies issued the second highest amount (35 percent) and the Federal EPA issued only 9 percent of the 131 NOVs. With the limited depth of information obtained from long text NOV documents, the question of why this difference exist can not be thoroughly answered; however the analysis provided indications of varying enforcement policies.

To determine further significance from the analysis, the information needed to be further dissected. Table 14 illustrates the distribution of NOVs issued by the EPA. Again, the reader is reminded an individual NOV may receive more than one violation types. The information obtained from the long text NOV documents was displayed by:

violation type, number of NOVs issued by the EPA for each violation type or pollution potential, and the percentage of total NOVs issued by the EPA for each violation type or pollution potential.

TABLE 14
DISTRIBUTION OF EPA NOVS

Category	# of NOVs	Percent of EPA NOVs	Percent of Total NOVs
Exceedances	9	75	7
Technical	1	8	<1
Personnel	0	0	0
Operations	0	0	0
Discharges	3	25	2
Facility	0	0	0
Administrative	1	8	<1
Direct Pollution Releases	12	100	0
Pollution Risks	0	0	0

The EPA issued only 12 of the 131 NOVs in the analysis. From Table 14, it can be assumed when the EPA issued an NOV, pollution to the environment was a factor (as illustrated by the 100 percent received in the category of Direct Pollution Releases). For the most part pollution risks (by themselves) did not merit the EPA issuing an NOV.

State regulatory agencies issued the second highest amount of NOVs, at 35 percent of the total. The

distribution of state issued NOVs is shown in Table 15 below.

TABLE 15
STATE DISTRIBUTION OF NOVS

Category	# of NOVs	Percent of State NOVs	Percent of Total NOVs
Exceedances	38	83	29
Technical	2	4	2
Personnel	0	0	0
Operations	0	0	2
Discharges	2	4	0
Facility	0	0	0
Administrative	6	13	5
Direct Pollution Release	40	87	31
Pollution Risk	6	13	5

Similar to the EPA issued NOVs, the state issued NOVs were issued in only four of the seven violation types; Exceedances, Technical, Unauthorized Discharges, and Administrative. Neither the EPA or the states issued NOVs for Personnel, Operational, or Facility Type violations. Contrary to the EPA, the state did issue NOVs that were not pollution releases. Thirteen percent of the NOVs issued by the state were identified as pollution risks.

Local regulatory agencies issued in excess of half (56 percent) the NOVs assessed in this analysis. The

distribution of local issued NOVs by the violation types and potential for pollution follows in Table 16.

TABLE 16
LOCAL DISTRIBUTION OF NOVS

Category	# of NOVs	Percent of ›cal NOVs	Percent of Total NOVs
Exceedances	27	37	21
Technical	8	11	6
Personnel	1	1	<1
Operations	3	4	2
Discharges	15	21	11
Facility	4	5	3
Administrative	22	30	17
Direct Pollution Release	44	60	33
Pollution Risk	29	40	22

As illustrated in Table 16, local regulatory agencies issued NOVs for a wider range of violations than either the state or EPA. All seven violation types were identified in local regulatory agency issued NOVs. The NOVs issued by local authorities also had a 60-40 split on pollution potential. Forty percent of the locally issued NOVs were identified as pollution risks, not pollution releases.

In summary, the analysis of the NOVs by geographical location indicated EPA Regions with above average noncompliance rates usually have one or two bases that received numerous NOVs from a local regulatory agency. An

increased focus upon local laws and regulations, and enhancing relationships between bases and local agencies might strengthen the Air Force's compliance program.

The distribution of NOVs by jurisdiction, showed the number of NOVs increased as the level of jurisdiction of the regulatory agencies decreased. The Federal EPA issued only 9 percent of the NOVs, the state issued 35 percent, and the local regulatory agencies issued 56 percent. The severity of the violations increased as progression was made up the jurisdiction pyramid. Local agency issued NOVs were identified as pollution releases only 60 percent of the cases. State Agency issued NOVs were identified as pollution releases 87 percent of the time. The Federal EPA did not issue an NOV unless a pollution release occurred.

Analysis by Date

The next step in the analysis was to breakdown the NOVs by Fiscal Year (FY) and Quarters. The intention of this analysis is to determine if the amount of NOVs issued varied greatly at any time.

The NOVs were listed by fiscal year and quarter, from Fiscal Year 1986 to present. The distribution of NOVs by date is illustrated in Figure 1.

FIGURE 1: NOV DISTRIBUTION BY DATE

Figure 1 showed the amount of NOVs received by the Air Force increase steadily until the third quarter of Fiscal Year 1992. In late 1992, the increase in NOVs capped and have steadily decreased. From Figure 1, the assumption was made the Air Force has progressed in its compliance program since 1992.

The analysis of NOVs by date issued was expanded to include each regulatory agencies' record of issuing NOVs. Figure 2 displays the distribution of EPA issued NOVs. The distribution of NOVs, since Fiscal Year 1986 to present, for state issued NOVs and local regulatory agency issued NOVs are illustrated in Figures 3 and 4.

The analysis was also expanded to include a historical analysis of the violations categorized as Direct Pollution Releases and Pollution Risks. The intent of this expanded analysis was to determine if the pollution potential of violations changed during the timeframe studied. Figures 5 and 6 show the variations of pollution potential over time.

As shown in Figure 2, the EPA has remained fairly consistent in issuing NOVs. For the most part, the EPA rarely issued more than one NOV per quarter. There was one quarter were three NOVs were issued, but the occurrence appeared to be an oddity.

FIGURE 2: EPA ISSUED NOVS BY DATE

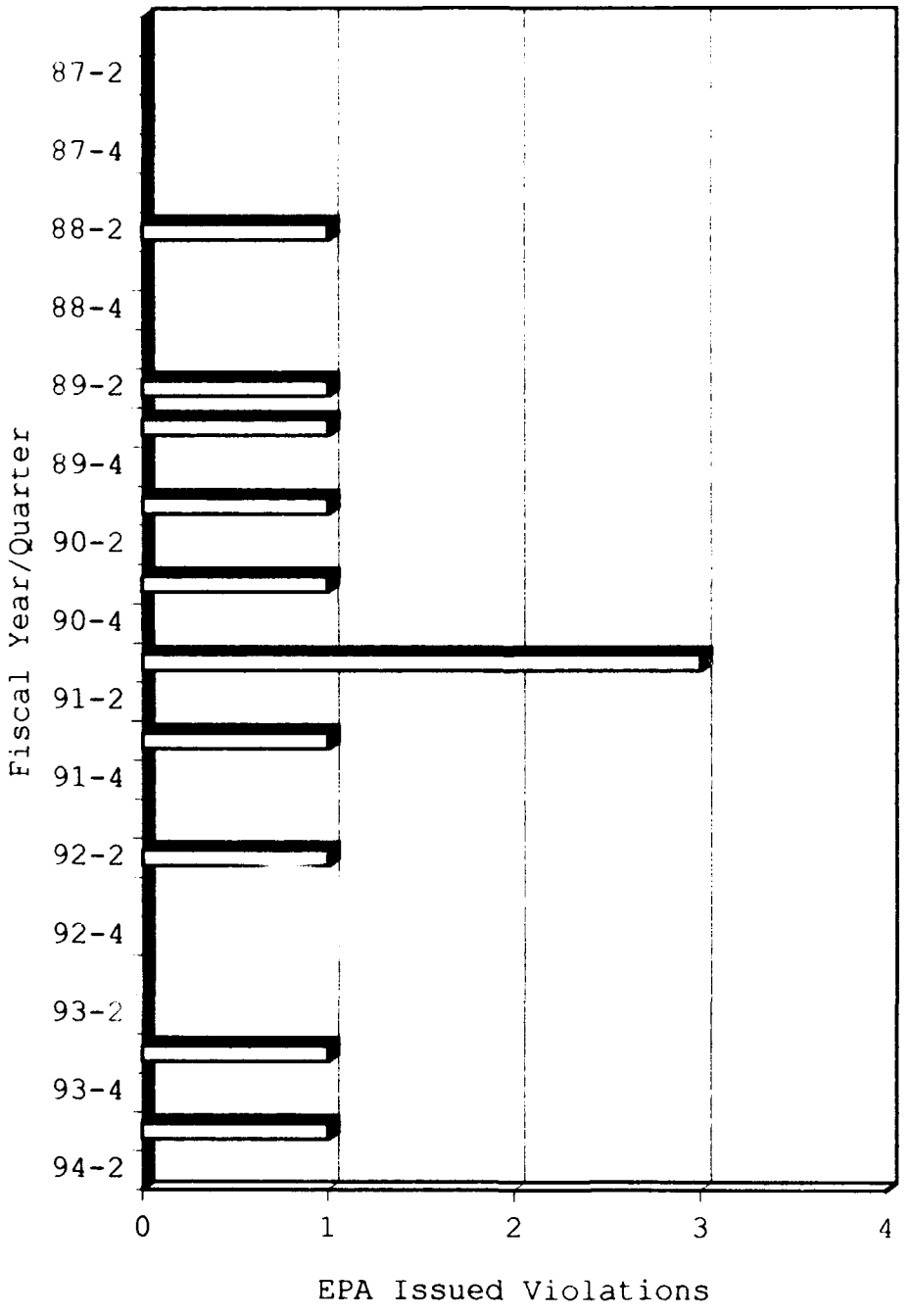


FIGURE 3: STATE ISSUED NOVS BY DATE

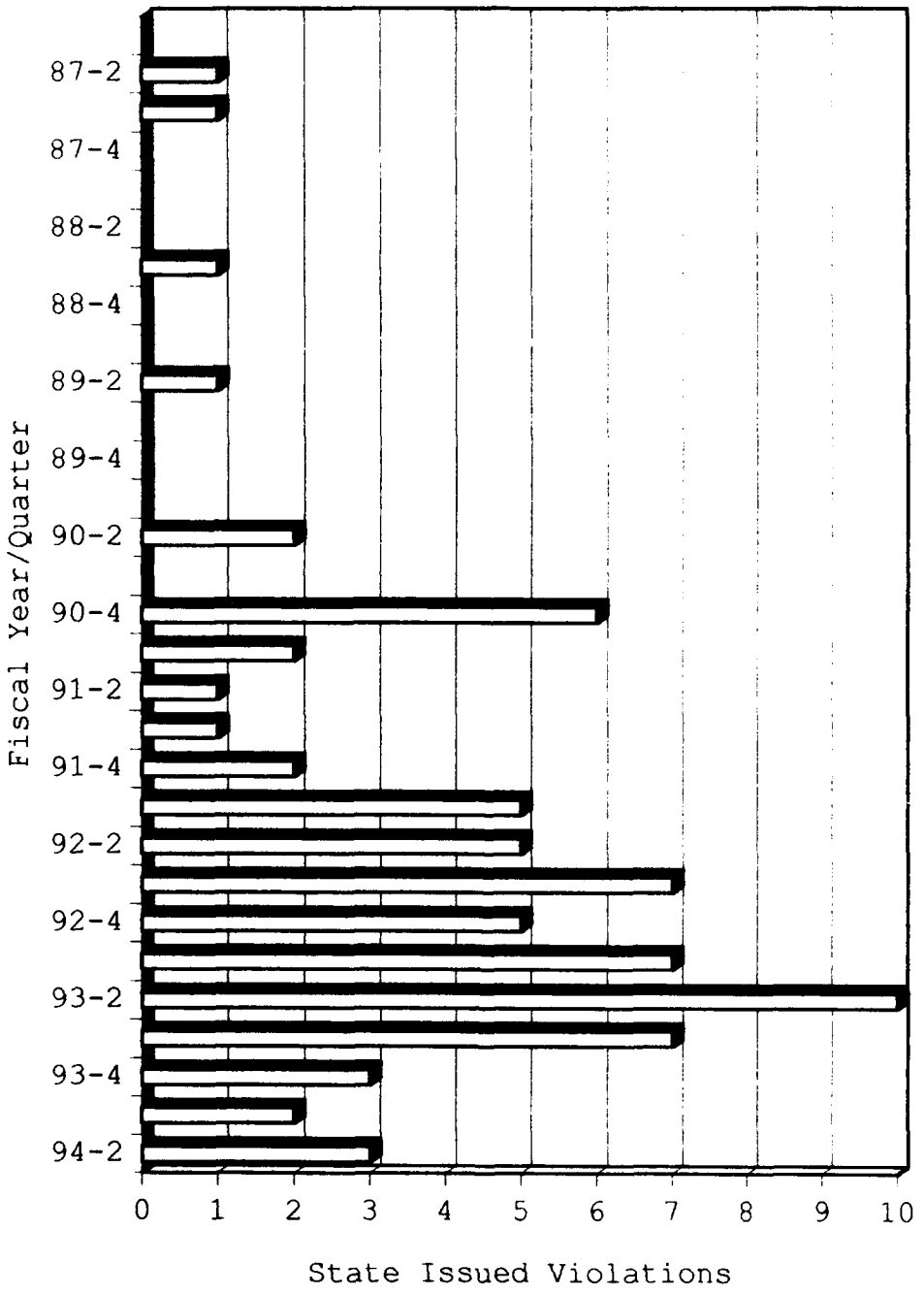


FIGURE 4: LOCAL ISSUED NOVS BY DATE

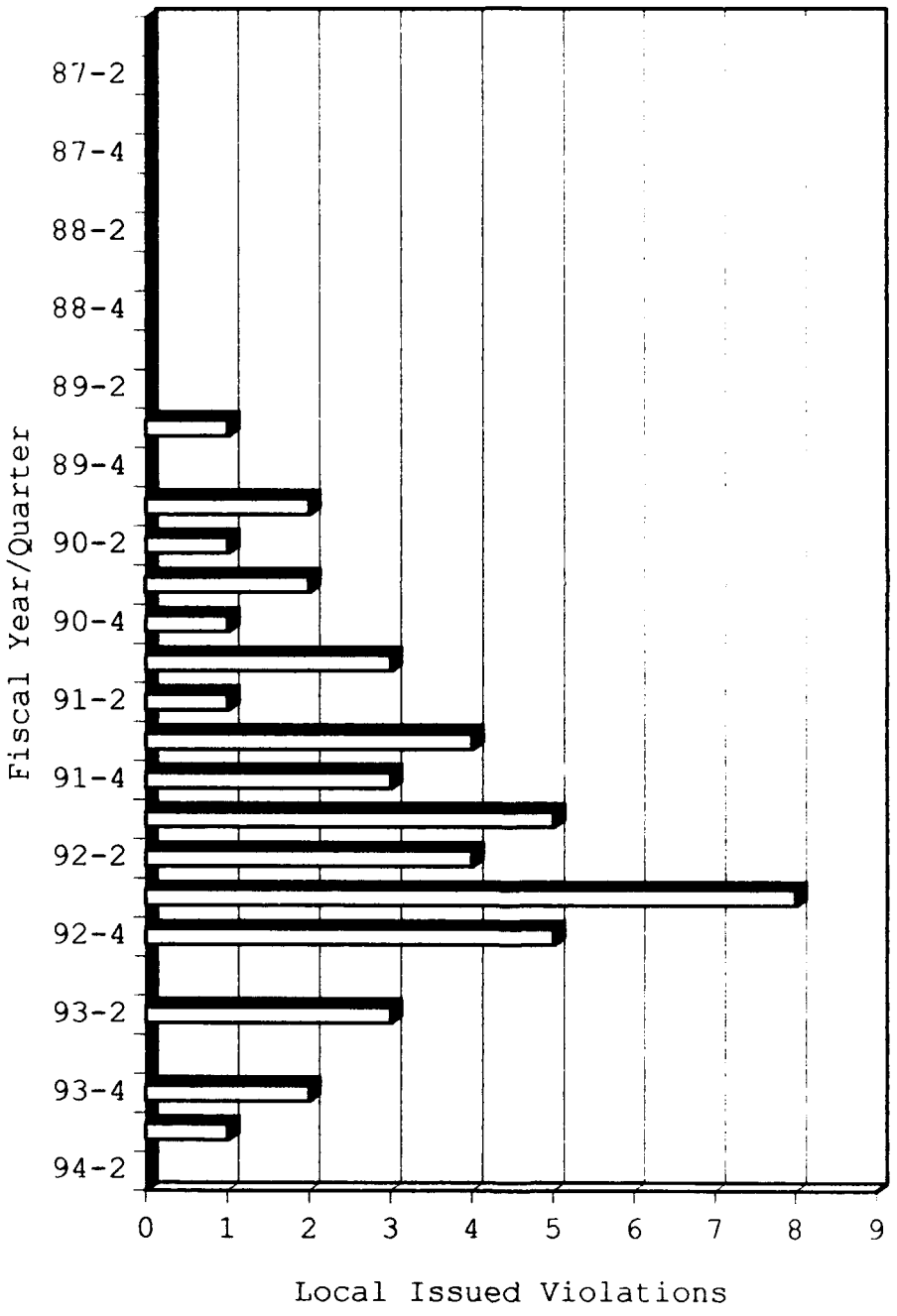


FIGURE 5: DIRECT POLLUTION VIOLATIONS BY DATE

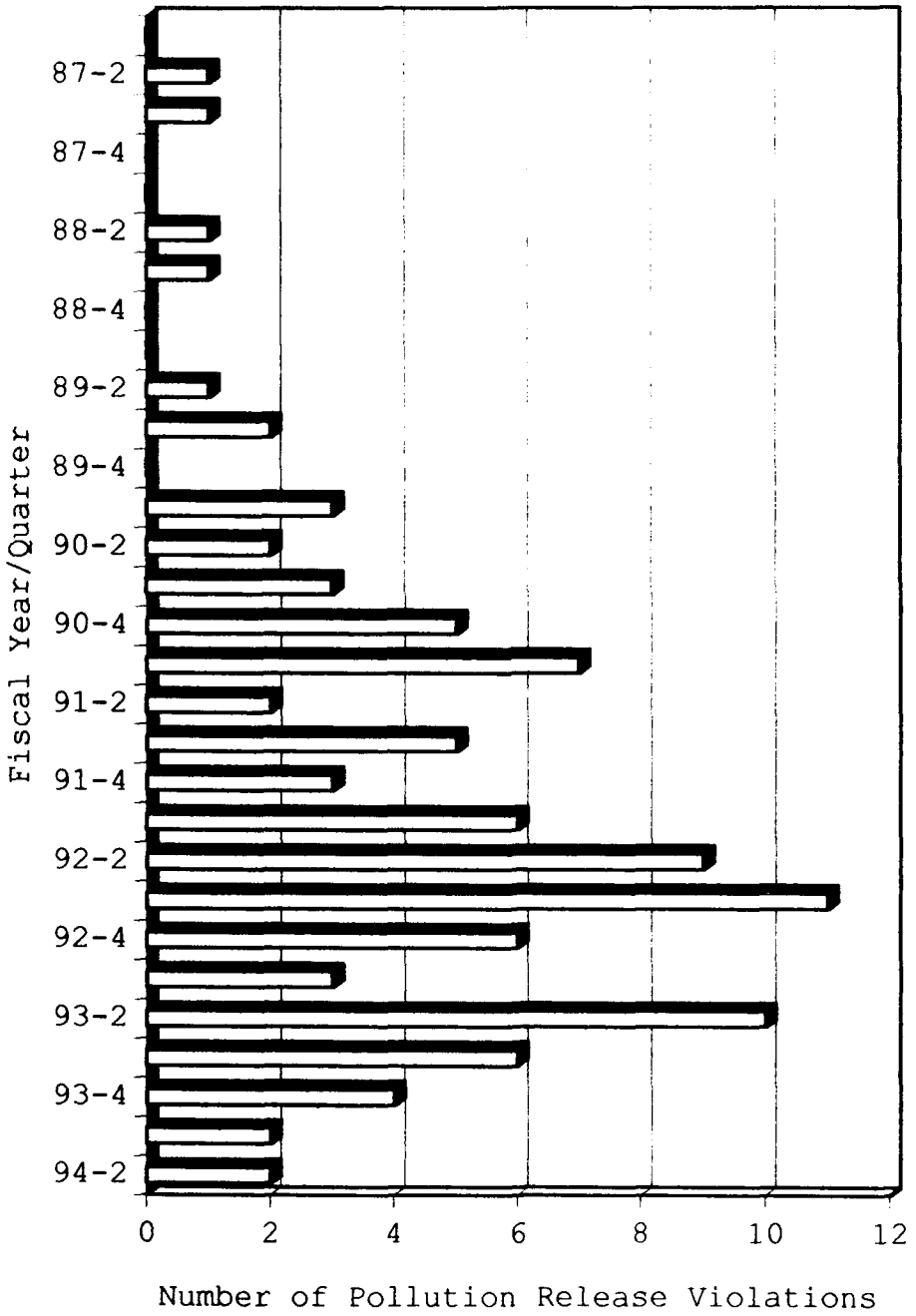
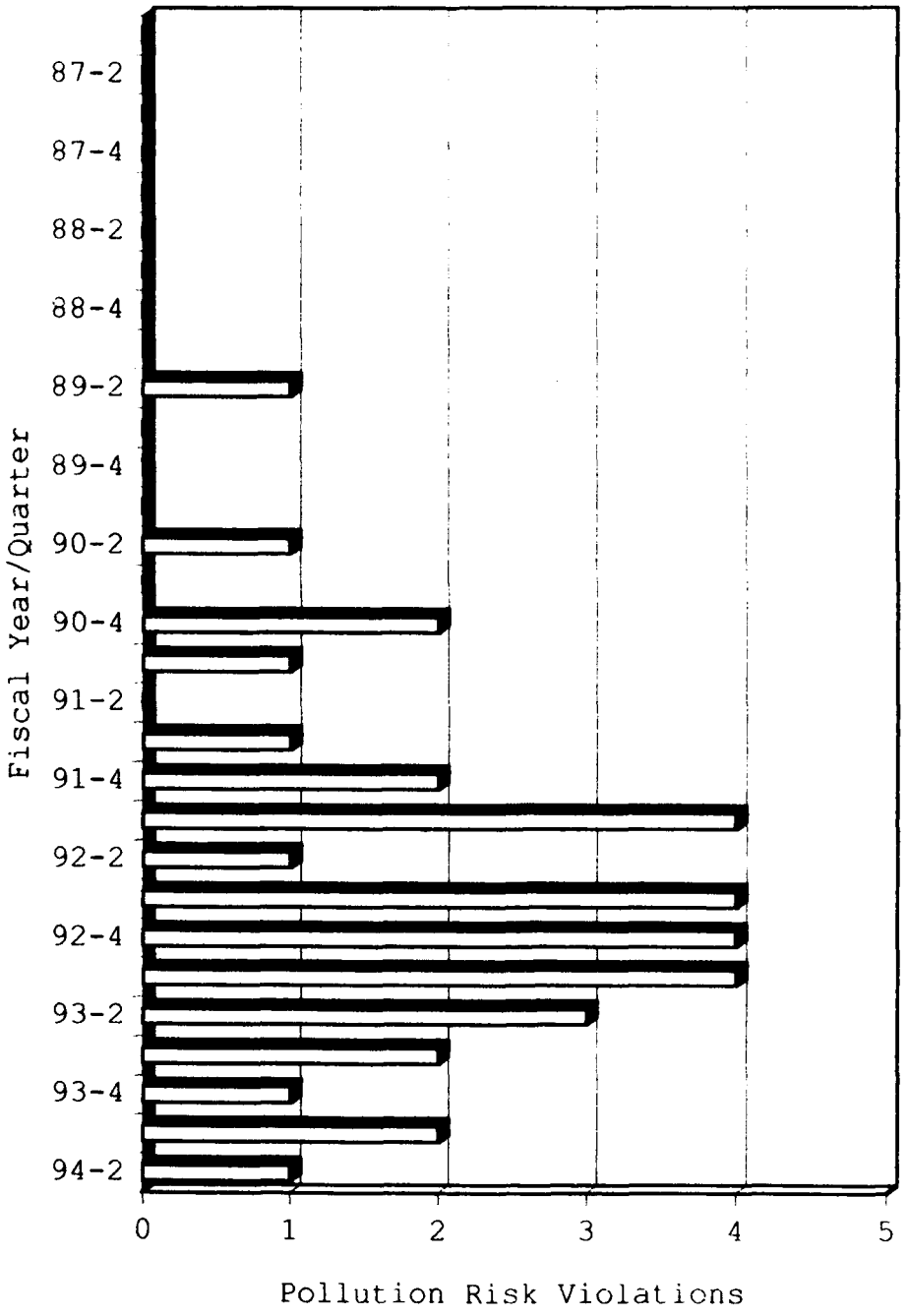


FIGURE 6: POLLUTION RISK BY DATE



In Figure 3, the distribution of NOVs issued by the state is displayed over time. The amount of NOVs jumped drastically during the last quarter of 1990 and fluctuated there until the third quarter of 1993. It appears the amount of state issued NOVs received by the Air Force decreased since the last quarter of 1993. The assumption was made the Air Force's compliance program is improving in regards to state issued NOVs.

The locally issued NOVs, as depicted in Figure 4, increased steadily until the third quarter of 1992. Again there is a recent decrease in NOVs; in the fourth quarter of 1992 the NOVs decreased significantly. The trend continued throughout 1993 into 1994. Again, the analysis determined the Air Force has greatly improved its compliance program with regard to local regulatory agencies.

The analysis of pollution potential (by date) did not reveal any hidden trends (Figures 5 and 6). The NOVs for both Pollution Risks and Direct Pollution Releases increased steadily until 1992, then in mid-1993 began to steadily decrease. The only significance found in the analysis was that direct pollution releases decreased at a slightly faster pace than the pollution risks. The inference made from this is the Air Force is prioritizing its resources in order to eliminate the most serious violations first.

In summary, the analysis of NOVs by date consistently (with the exception of EPA issued NOVs) showed the frequency of NOVs increased steadily until the 1992 timeframe, then decreased steadily. This trend indicated the Air Force has improved in its overall compliance with the Clean Water Act.

Information Provided by Environmental Shops

The information received from environmental shops at 17 Air Force Installations was compared to the information received from the Regional Compliance Offices for the same 17 installations. The comparison encompassed dates, regulatory agency that issued the NOV, and the violation description. The intent of the analysis was to determine the accuracy of the data received from the Regional Compliance Offices. The assumption used was if the two sets of information matched, the accuracy is verified. Table 16 displays the comparison of the two sets of information.

Corroboration of Regional Compliance Offices Database

Of the 17 bases, 12 bases matched 100 percent of the time. Most of the bases (one exception) with no NOVs matched 100 percent. Generally, the information concerning bases with one or more NOVs was less accurate.

The analysis showed the accuracy of the Regional Compliance Offices database was not verified. The two databases matched 78 percent of the time. It was not possible to determine which database was correct.

TABLE 17
COMPARISON OF THE TWO DATABASES

Base	Percent Match
1	100
2	100
3	100
4	100
5	100
6	0
7	100
8	0
9	100
10	100
11	40
12	100
13	100
14	50
15	100
16	100
17	0
AVERAGE	76

V. Conclusions and Recommendations

Overview

The objective of the research was to determine if an analysis of past violations assessed against the Air Force could be used as a managerial tool to enhance the Air Force's Clean Water Act compliance program. A database of previous violations maintained at the Air Force's Regional Compliance Offices was used to answer the following questions:

1. What is the trend in the types of violations received by the Air Force?
2. Are the NOVs received by the Air Force polluting the environment or are they issued because of minor infractions of the Clean Water Act?
3. Are certain Air Force Installations more susceptible to receiving NOVs than others because of their location?
4. Do the three different levels of regulatory agencies (Federal, State, or Local) vary in their enforcement policies?

5. Is there any variation in the number of NOVs received over the time period Fiscal Year 1986 to present?

Conclusions

Question One. The first question, what was the trend of violation types received by the Air Force, was answered by an analysis of NOVs by violation reasons. The analysis categorized the NOVs from the database by the following types: Exceedance, Technical, Personnel, Operational, Unauthorized Discharges, Facility or Equipment, and Administrative Deficiencies.

The analysis determined the Air Force's past violations listed exceedance of limits as a violation in over half the NOVs received. Administrative deficiencies, the second most prevalent violation, appeared in 22 percent of the violations. Unauthorized discharges ranked third in frequency, listed as 15 percent of violations received. The fourth most frequently observed violation was Technical Deficiencies. The remaining categories (Personnel, Operational, and Facility or Equipment) received three percent or less of the violations.

The analysis determined the Air Force should concentrate its resources on their most frequently encountered

violations; exceedances, administrative deficiencies, unauthorized discharges, and technical deficiencies.

Question Two. The analysis by pollution potential answered the question whether the Air Force violations caused damage to the environment or were they issued because of minor infractions of the Clean Water Act.

The analysis showed that 73 percent of the Air Force's violations were considered as direct pollution releases, the remaining 27 percent of the violations were considered pollution risks.

Question Three. Are certain Air Force Installations more susceptible to receiving NOVs than others because of their location? This question was answered by the analysis of NOVs by Region. The analysis showed the amount of NOVs received in Regions III and V were significantly higher than other regions. EPA Region I, II, VII, VIII also received a slightly higher than expected percentage of the NOVs. The analysis was expanded to reviewing the number of NOVs each base located in a specific region received. The expanded analysis indicated the higher rates were usually caused by one or two the bases located within the region receiving enormous amounts of NOVs from a local regulatory agency.

The assumption made was the Air Force should focus more attention on local regulatory laws and policies. Emphasis

should also be placed on the individual bases with significant noncompliance records rather than the EPA regions.

Question Four. From the analysis on NOVs by Regulatory Agencies it was determined the three different levels of regulatory agencies (Federal, State, or Local) do vary in their enforcement policies.

The federal level regulatory agency (the EPA) issued only nine percent of the NOVs from the database. All of the NOVs issued by the EPA were categorized as direct pollution releasers. The analysis indicated the EPA only issues NOVs in cases were pollution actually occurred and not in cases were only a pollution risk was identified.

The state issued 35 percent of the NOVs in the database. The NOVs were issued mostly (87 percent of the time) for direct pollution releases; however, the states' enforcement policies differed from the EPA's enforcement policy by issuing NOVs for pollution risks 17 percent of the time.

Local regulatory agencies issued more than half (56 percent) the NOVs from the database. The local regulatory was also more apt to issue an NOV for pollution risks than either the state or the EPA.

Again, the analysis indicated the Air Force needs to emphasize more attention on local regulatory laws and policies.

Question Five. The analysis of NOVs by Date answered the question of whether there was any variation in the number of NOVs received over the time period Fiscal Year 1986 to present.

The analysis by date depicted a significant increase of NOVs until 1992. In late 1992, the NOVs began to decrease and continued decreasing into the present. The analysis also showed a slightly faster rate of improvement for direct pollution releases compared to pollution risks.

The interpretation derived from this analysis was the Air Force has improved in compliance during recent years. The analysis also indicated the Air Force might be concentrating its efforts more on the direct pollution releases than the pollution risks.

In summary the research proved an analysis of past noncompliance can be used as a managerial tool to enhance compliance programs.

Recommendations

The depth of information provided in the historical records of noncompliance was the limiting factor in the

analysis. More detailed and complete information would have enhance the depth of this research.

Another limiting factor in the analysis was the questionable accuracy and lack of completeness of the database. Since the information provided by the Regional Compliance Offices could not be validated for accuracy, the results achieved are questionable.

The two limiting factors encountered in this research dealt with the Air Force's database of past noncompliances. A better method of maintaining the historical noncompliance records; emphasizing consistent, complete, and accurate information would ehance the Air Force in improving their compliance program.

Future Research

Research into creating a useful format to maintain historical noncompliance violations would enhance the Air Force's capability of assessing its compliance programs. Emphasis on a thorough, in-depth description of the violation and the corrective actions (planned or required) to eliminate the violation is required.

Research into the relationships between bases with a history of noncompliance and the local regulatory agencies

issuing the violations would also enhance the Air Force's ability to improve its compliance programs.

Research into the relationship between violations received by the Air Force and the proximity of sensitive environmental ecosystems (such as the Great Lakes, San Francisco Bay, or Chesapeake Bay) should also be undertaken to determine their significance.

Appendix A: State NPDES Permitting Programs
(11:267-280)

State	Agency	Location	NPDES Approved
Alabama	Department of Environmental Management	Montgomery, AL	10/19/79
Alaska	Department of Environmental Conservation	Juneau, AK	No
Arizona	Department of Environmental Quality	Phoenix, AZ	No
Arkansas	Water Division Department of Pollution Control and Ecology	Little Rock, AR	11/01/86
California	State Water Resources Control Board	Sacramento, CA	05/14/73
Colorado	Dept. of Health Water Quality Control Division	Denver, CO	03/27/75
Connecticut	Department of Environmental Protection Water Resources	Hartford, CT	09/26/73
Delaware	Department of Natural Resources	Dover, DE	04/01/74
District of Columbia	Environmental Regulation Administration	Washington, D.C.	No
Florida	Department of Environmental Regulations	Tallahassee, FL	No

Georgia	Environmental Protection Division	Atlanta, GA	06/28/74
Hawaii	Environmental Management Division	Honolulu, HI	11/28/74
Idaho	Water Quality Bureau	Boise, ID	No
Illinois	Division of Water Pollution Control	Springfield, IL	10/23/77
Indiana	Water Pollution Control Board	Indianapolis IN	01/01/75
Iowa	Department of Natural Resources	Des Moines, IA	08/10/78
Kansas	Department of Health and Environment, Bureau of Water	Topeka, KS	06/28/74
Kentucky	Permits Coordinator, Division of Water	Frankfort, KY	09/30/83
Louisiana	Department of Environmental Quality, Office of Water Resources	Baton Rouge, LA	No
Maine	Department of Environmental Protection	Augusta, MA	No
Maryland	Department of the Environment	Baltimore, MD	09/05/74
Massachusetts	Department of Environmental Protection	Boston, MA	No

Michigan	Water Quality Division, Environmental Protection Bureau	Lansing, MI	10/17/73
Minnesota	Pollution Control Agency, Division of Water Quality	St. Paul, MN	06/30/74
Mississippi	Dept. of Environmental Quality, Surface Water Branch	Jackson, MS	05/01/74
Missouri	Department of Natural Resources	Jefferson City, MO	10/30/74
Montana	Department of Health and Environmental Sciences	Helena, MT	06/10/74
Nebraska	Water Quality Division, Department of Environmental Control	Lincoln, NE	06/12/74
Nevada	Department of Conservation and Natural Resources	Carson City, NV	09/19/75
New Hampshire	Department of Environmental Services	Concord, NH	No
New Jersey	Bureau of Ground Water Discharge Control	Trenton, NJ	04/13/82
New Mexico	Environmental Department	Santa Fe, NM	No

New York	Department of Environmental Conservation	Albany, NY	10/28/75
North Carolina	Department of Natural Resources and Community Development	Raleigh, NC	10/19/75
North Dakota	Department of Health, Division of Water Quality	Bismarck, ND	06/13/75
Ohio	Environmental Protection Agency	Columbus, OH	03/11/74
Oklahoma	Water Resources Board, Water Quality Division	Oklahoma City, OK	No
Oregon	Department of Water Quality	Portland, OR	09/26/73
Pennsylvania	Department of Environmental Resources	Harrisburg, PA	06/30/78
Rhode Island	Department of Environmental Management	Providence, RI	09/17/84
South Carolina	Bureau of Water Pollution Control	Columbia, SC	06/10/75
South Dakota	Department of Environment and Natural Resources	Pierre, SD	No
Tennessee	Tennessee Department of Environment and Conservation	Nashville, TN	12/28/77

Texas	Wastewater Management Division	Austin, TX	No
Utah	Department of Environmental Quality	Salt Lake City, UT	07/07/87
Vermont	Department of Environmental Conservation	Waterbury, VT	03/11/74
Virgin Islands	Environmental Protection Division	St. Thomas, VI	06/30/76
Virginia	Office of Water Resource Management	Richmond, VA	03/31/75
Washington	Dept. of Ecology, Water Quality Programs	Lacey, WA	11/14/73
West Virginia	Department of Natural Resources	Charleston, WV	05/10/82
Wisconsin	Bureau of Wastewater Management, Dept. of Natural Resources	Madison, WI	02/04/74
Wyoming	Department of Environmental Protection	Cheyenne, WY	01/30/75

Appendix B: U.S. EPA REGIONAL OFFICES
(11:281-282)

REGION	LOCATION	STATES IN REGION
1	John F. Kennedy Federal Bldg. One Congress Street Room 2203 Boston, MA 02203 617-565-3400	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
2	Jacob K. Javitz Federal Bldg. 26 Federal Plaza Room 900 New York, NY 10278 212-264-2657	New York, New Jersey, Puerto Rico, Virgin Islands
3	841 Chestnuts Bldg. Philadelphia, PA 19107 215-597-9800	Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia
4	345 Courtland Street, N.E. Atlanta, GA 30365 404-347-4727	Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi
5	230 South Dearborn Street Chicago, IL 60604 312-353-2000	Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota
6	First Interstate Bank at Fountain Place, Suite 1200 1445 Ross Avenue Dallas, TX 75202-2733 214-655-2100	Arkansas, Louisiana, Texas, Oklahoma, New Mexico

7	726 Minnesota Avenue Kansas City, KS 66101 913-551-7000	Iowa, Missouri, Kansas, Nebraska
8	Suite 500 1 Denver Place 999 18th Street Denver, CO 80202-2405 303-293-1603	Montana, North Dakota, South Dakota, Wyoming, Colorado, Utah
9	75 Hawthorne Street San Francisco, CA 94105 415-744-1305	California, Nevada, Arizona, Hawaii, Guam, American Samoa, Trust Territories
10	1200 sixth Avenue Seattle, WA 98101 206-442-1200	Idaho, Oregon, Washington, Alaska

Appendix C: Example of an EPA Issued Notice of Violation (5:6-41)

Region III
Curtis Building
6th & Walnut Street
Philadelphia, Pennsylvania 19106

IN THE MATTER OF:

Facility name and address:

_____ :
_____ : Docket No. _____
_____ :

PROCEEDINGS UNDER SECTION 309(a) OF THE CLEAN WATER ACT : NOTICE OF VIOLATION

RE: NPDES PERMIT NO._____ :

STATUTORY AUTHORITY

The following FINDINGS are made and NOTICE OF VIOLATION issued pursuant to the authority vested in the Administer of the Environmental Protection Agency (hereinafter "EPA") under Section 309 of the Clean Water Act (hereinafter "Act") which authority has been delegated by the Administrator to the Regional Administrator of Region ____, and redelegated by the Regional Administrator of Region ____ to the Director, Water Management Division of Region ____.

FINDINGS OF VIOLATION

1. On _____, EPA, Region ____, and the (applicable state agency) issued National Pollutant Discharge Elimination Permit Number _____ (hereinafter "Permit") to _____(hereinafter "permittee") to discharge from its facility located at _____ to the _____ River, a navigable waterway, in accordance with effluent limitations and monitoring requirements and other conditions set forth in the permit. The permit became effective _____.

2. Paragraph___ of the permit, as amended, entitled "Future Effluent Limitations and Monitoring Requirements" required that the permittee attain certain specified effluent limitations for outfall 001 by _____.

3. Part IB of the permit, as amended, entitled "Monitoring and Reporting" requires the permittee to submit Discharge Monitoring Reports (hereinafter "DMRs") on a quarterly basis showing the results of all monitoring for the preceding three months.

4. An evaluation of the DMRs submitted for the months of July, 1977 through April, 1978 shows that the permittee has violated the effluent limitations for outfall 001 as reported in Attachment A.

NOTICE OF VIOLATION

Notice is hereby given the permittee and the state agency that the undersigned, by the authority duly delegated by the Administrator of the Regional Administrator of EPA, Region ___, and by him duly sub-delegated, finds the permittee is in violation of a condition or a limitation that implements Section 301 of the Act in a permit issued under Section 402 of the Act.

If the state has not commenced appropriate enforcement actions within thirty (30) days of the date of this Notice, EPA, Region ____, will commence appropriate enforcement action pursuant to Section 309 of the Act.

Signed this _____ day of _____, 19__

Director
Water Management Division Region _____

Appendix D: Air Force Regional Compliance Offices

Regional Compliance Office and Point of Contact	EPA Regions	States and Territories
Eastern POCs: John M. Gordon/Dave Glass AFCEE/CCR-A 77 Forsyth Street, SW, Suite 295 Atlanta, GA 30335-6801 Telephone # (404) 331-6821	I II III IV	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Puerto Rico, Virgin Islands, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi
Central POC: Ron Jahns AFCEE/CCR-B 525 South Griffin Box 116 Dallas, TX 75202-5023 Telephone #(214) 767-4648	V VI VII VIII	Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Arkansas, Louisiana, Texas, Oklahoma, New Mexico, Iowa, Missouri, Kansas, Nebraska, Montana, North Dakota, South Dakota, Wyoming, Colorado, Utah
Western POC: Michael Tye AFCEE/CCR-C 630 Sansome Street Room 1334 San Francisco, CA 94111-2278 Telephone #(415) 705-1711	IX X	California, Nevada, Arizona, Hawaii, Guam, American Samoa, Trust Territories, Idaho, Oregon, Washington, Alaska

Appendix E: Air Force Bases Receiving Questionnaire

BASE	State	EPA Region
Air Force Academy	CO	VIII
Altus	OK	VI
Andrews	MD	III
Arnold	TN	IV
Barksdale	LA	VI
Beale	CA	IX
Bolling	DC	III
Brooks	TX	VI
Cannon	NM	VI
Carswell	TX	VI
Castle	CA	IX
Charleston	SC	IV
Cheyenne Mtn	CO	VIII
Columbus	MS	IV
Davis-Monthan	AZ	IX
Dobbins	GA	IV
Dover	DE	III
Dyess	TX	VI
Eareckson	AK	X
Edwards	CA	IX
Eglin	FL	IV
Eielson	AK	X
Ellsworth	SD	VIII
Elmendorf	AK	X
Fairchild	WA	X
Falcon	CO	VIII
F.E. Warren	WY	VIII
Goodfellow	TX	VI
Grand Forks	SD	VIII
Griffis	NY	II
Grissom	IN	V
Hanscom	MA	I
Hicham	HI	IX
Holloman	NM	VI
Hurlburt	FL	IV
K.I. Sawyer	MI	V
Keesler	MS	IV
Kelly	TX	VI
King Salmon	AK	X

BASE	State	EPA Region
Kirkland	NM	VI
Lackland	TX	VI
Langley	VA	III
Laughlin	TX	VI
Little Rock	AR	VI
Loring	ME	I
Los Angeles	CA	IX
Luke	AZ	IX
March	CA	IX
Maxwell	AL	IV
McChord	WA	X
McClellan	CA	IX
McConnell	KS	VII
McDill	FL	IV
McQuire	NJ	II
Minot	ND	VIII
Moody	GA	IV
Mountain Home	ID	X
Nellis	NV	IX
Offutt	NE	VII
Onizuka	CA	IX
Patrick	FL	IV
Peterson	CO	VIII
Plattsburg	NY	II
Pope	NC	IV
Randolph	TX	VI
Reese	TX	VI
Robins	GA	IV
Scott	IL	V
Seymour-Johnson	NC	IV
Shaw	SC	IV
Sheppard	TX	VI
Tinker	OK	VI
Travis	CA	IX
Tyndall	FL	IV
Vance	OK	VI
Vandenberg	CA	IX
Whiteman	MO	VII
Wright-Patterson	OH	V
Total Bases Contacted	78	

Appendix F: Summary of NOVs Received from Regional Compliance Offices

Because of the large amount of data corresonding to each NOV, Appendix F is displayed in three different sections. In each section the NOV# represents the same NOV.

NOV#	Installation	State	EPA Region	Date Issued	Issuing Agency
1	Andrews	MD	III	Jan-90	State
2	Andrews	MD	III	Jul-90	State
3	Andrews	MD	III	Jul-90	State
4	Andrews	MD	III	Dec-90	State
5	Andrews	MD	III	Nov-91	State
6	Andrews	MD	III	Nov-91	State
7	Andrews	MD	III	Feb-92	State
8	Andrews	MD	III	Jun-92	State
9	Andrews	MD	III	Jun-92	State
10	Andrews	MD	III	Mar-93	State
11	Andrews	MD	III	Jul-93	State
12	Andrews	MD	III	Jan-94	State
13	Andrews	MD	III	Mar-94	State
14	Arnold	TN	IV	Jun-93	State
15	Barksdale	LA	VI	Jul-90	State
16	Barksdale	LA	VI	Nov-90	EPA
17	Barksdale	LA	VI	Nov-91	Local
18	Bolling	DC	III	May-93	State
19	Brooks	TX	VI	May-91	Local
20	Cape Canaveral	FL	IV	Dec-91	State
21	Cape Canaveral	FL	IV	Jan-92	State
22	Cape Canaveral	FL	IV	Mar-92	State
23	Cape Canaveral	FL	IV	Apr-92	State
24	Cape Canaveral	FL	IV	May-92	State
25	Cape Canaveral	FL	IV	Jun-93	State
26	Cape Canaveral	FL	IV	Dec-93	State
27	Charleston	SC	IV	Nov-93	State
28	Cheyenne Mt.	CO	VIII		State
29	Davis-Monthan	AZ	IX	Dec-93	Local
30	Davis-Monthan	AZ	IX	Jan-88	EPA
31	Davis-Monthan	AZ	IX	Oct-89	Local
32	Davis-Monthan	AZ	IX	Oct-89	Local
33	Davis-Monthan	AZ	IX	Oct-91	Local
34	Eareckson	AK	X	Apr-88	State
35	Eglin	FL	IV	Oct-92	State
36	Eglin	FL	IV	Sep-93	State

NOV#	Installation	State	EPA Region	Date Issued	Issuing Agency
37	Eielson	AK	X	Aug-92	State
38	Eielson	AK	X	Nov-92	State
39	Ellsworth	SD	VIII	May-91	EPA
40	Ellsworth	SD	VIII	Mar-92	EPA
41	Ellsworth	SD	VIII	Jun-93	EPA
42	Elmendorf	AK	X	Jun-87	State
43	Elmendorf	AK	X	Nov-90	State
44	Elmendorf	AK	X	Nov-90	Local
45	England	LA	VI	Dec-91	Local
46	Falcon	CO	VIII	Mar-93	State
47	F.E. Warren	WY	VIII	Aug-92	State
48	F.E. Warren	WY	VIII	Oct-92	State
49	F.E. Warren	WY	VIII	Nov-92	State
50	F.E. Warren	WY	VIII	Dec-92	State
51	Griffis	NY	II	Jun-92	State
52	Hanscom	MA	I	Mar-91	State
53	Hanscom	MA	I	Apr-93	State
54	Hill	UT	VIII	Apr-91	Local
55	Hill	UT	VIII	Jul-91	Local
56	Hill	UT	VIII	May-92	Local
57	Hill	UT	VIII	May-92	Local
58	Hill	UT	VIII	May-92	Local
59	Hill	UT	VIII	May-92	Local
60	Hill	UT	VIII	May-92	Local
61	Hill	UT	VIII	Jun-92	Local
62	Hill	UT	VIII	Jun-92	Local
63	Hill	UT	VIII	Aug-92	Local
64	Hill	UT	VIII	Aug-93	Local
65	Kelly	TX	VI	Mar-89	State
66	Kelly	TX	VI	Oct-90	EPA
67	Kelly	TX	VI	Aug-92	Local
68	Kelly	TX	VI	Nov-93	EPA
69	Kelly	TX	VI	Jan-94	State
70	King Salmon	AK	X	Aug-92	State
71	Kirkland	NM	VI	Sep-90	State
72	Langley	VA	III	Aug-90	State
73	Langley	VA	III	Jul-91	State
74	Langley	VA	III	Aug-91	State
75	Langley	VA	III	Oct-91	State
76	Langley	VA	III	Mar-92	State
77	Langley	VA	III	Jan-93	State
78	Langley	VA	III	Feb-93	State
79	Langley	VA	III	Mar-93	State
80	Langley	VA	III	Mar-93	State

NOV#	Installation	State	EPA Region	Date Issued	Issuing Agency
81	Langley	VA	III	Apr-93	State
82	Langley	VA	III	May-93	State
83	Langley	VA	III	Sep-93	State
84	Little Rock	AR	VI	Feb-90	Local
85	Little Rock	AR	VI	Jun-91	State
86	Loring	ME	I	Mar-89	EPA
87	Luke	AZ	IX	May-89	EPA
88	MacDill	FL	IV	May-91	Local
89	McClellan	CA	IX	Jul-92	Local
90	McConnell	KS	VII	Jan-92	Local
91	McConnell	KS	VII	Mar-92	Local
92	McConnell	KS	VII	May-92	Local
93	McConnell	KS	VII	Mar-93	Local
94	McQuire	NJ	II	May-90	EPA
95	McQuire	NJ	II	Feb-92	State
96	McQuire	NJ	II	Sep-92	State
97	McQuire	NJ	II	Mar-93	State
98	McQuire	NJ	II	Mar-93	State
99	Nellis	NV	IX	May-92	State
100	Nellis	NV	IX	Mar-93	Local
101	Nellis	NV	IX	Mar-93	Local
102	Norton	CA	IX	Dec-90	Local
103	Offutt	NE	VII	Mar-90	State
104	Patrick	FL	IV	Sep-92	State
105	Patrick	FL	IV	Nov-92	State
106	Patrick	FL	IV	Dec-92	State
107	Patrick	FL	IV	Apr-93	State
108	Seymour-Johnson	NC	IV	Nov-91	State
109	Seymour-Johnson	NC	IV	Apr-92	State
110	Shaw	SC	IV	Jan-87	State
111	Sheppard	TX	VI	Dec-90	EPA
112	Tinker	OK	VI	Dec-89	EPA
113	Vance	OK	VI	Jun-91	Local
114	Vance	OK	VI	Jul-91	Local
115	Vandenberg	CA	IX	Jun-90	Local
116	Vandenberg	CA	IX	Aug-90	State
117	Whiteman	MO	VII	Mar-93	State
118	Wright-Patterson	OH	V	Jun-89	Local
119	Wright-Patterson	OH	V	May-90	Local
120	Wright-Patterson	OH	V	Sep-90	Local
121	Wright-Patterson	OH	V	Dec-90	Local
122	Wright-Patterson	OH	V	Mar-91	Local
123	Wright-Patterson	OH	V	Aug-91	Local
124	Wright-Patterson	OH	V	Dec-91	Local

NOV#	Installation	State	EPA Region	Date Issued	Issuing Agency
125	Wright-Patterson	OH	V	Dec-91	Local
126	Wright-Patterson	OH	V	Jan-92	Local
127	Wright-Patterson	OH	V	Feb-92	Local
128	Wright-Patterson	OH	V	Sep-93	Local
129	Wright-Patterson	OH	V	Jul-92	Local
130	Wright-Patterson	OH	V	Jul-92	Local
131	Wright-Patterson	OH	V	Jan-93	State

Violation Description

NOV#	CAUSE
1	Lab violations
2	Uncertified WWTP personnel
3	Lab violations
4	Failure to collect BOD samples
5	Exceeded BOD and TSS
6	Exceed fecal coliform
7	Exceeding fecal coliform
8	Several administrative deficiencies, failure to sample, improper reports, etc.
9	Exceeding nitrogen limit
10	Sediment runoff
11	Exceeding silver limit, failure to notify
12	Failure to obtain approved erosion control plan
13	Unauthorized dumping, and inadequate silt fencing
14	Exceeding NPDES limits for iron and copper
15	Improper discharge to state waters w/o permit caused by overflow
16	Violation of NPDES permit at 3 outfalls
17	Exceeded oil and grease discharge permit levels
18	Silver wastewater spill

19 Exceeded oil/grease limit established in NPDES permit

20 Failure to install stormswales IAW approved plans

21 Total suspended solids

22 Failure to install stormswales IAW approved plans

23 Failure to install stormswales IAW approved plans

24 Failure to submit certificates of construct for swales

25 Failure to install stormswales IAW approved plans

26 Failure to construct storm water system IAW approved permit

27 Exceed NPDES pH limits

28 Failure to obtain construction permits for sewer and water line installation

29 Failure to monitor industrial wastewater discharges

30 Unpermitted discharges

31 Exceeding total phenols limit in base

32 Exceeding phenols and cadmium limit from Hospital area

33 Exceeding NPDES limits of industrial waste pH to WWTP

34 Wastewater discharge exceeded limits for residual chlorine and coliforms

35 Numerous operational and maintenance problems

36 Not constructing stormwater treatment pond as required by permit

37 No permit for installation of water well

38 Failure to submit monitoring results, report spill, and perform continuous flow monitoring

39 Effluent limits for Outfall#5 violated, failure to biomonitor

40 Petroleum products from unknown source discharging from holding pond

41 Self-monitoring indicates exceeded TSS and BOD, and failure to notify regulators

42 Visible detergents in Cherry Hill ditch

43 Exceeding silver levels

44 Discharge from steam power plant violated pH standards

45 Failure to submit Commercial User Survey and renew permit application

46 Self monitoring - BOD exceeded, at 2 pts for 4 yrs.

47 Coal pile runoff at discharge pt 1, permit is for discharge at pt 3

48 Failure to obtain construction permit for water and sewer connection improvements

49 During routine inspection coal pile runoff at non permitted point was observed and recorded

50 TCE detection at discharge pt 1 during regulator sampling inspection

51 Petroleum spill

52 Process water discharge in storm drain

53 Discharging cooling water into storm water

54 Discharging contaminated groundwater into County sewer plant

55 Exceeding Total Toxic Organics

56 Self monitoring indicates effluent levels for cadmium exceeded

57 Self monitoring indicates effluent levels for cadmium exceeded

58 Self monitoring indicates effluent levels for cadmium exceeded

59 Self monitoring indicates effluent levels for cadmium exceeded

60 Monthly average of cadmium exceeded

61 Exceeding 24 hour composite of Total Toxic Organics at Railroad Discharge Point

62 Exceeding 24 hour composite of Total Toxic Organics at Hospital Discharge Point

63 Failure to submit all self monitoring and/or periodic monitoring reports IAW schedule

64 Self monitoring indicates base exceeds copper limits

65 No flow monitor devices at Outfalls #2,3 and 4

66 Self reported violations of NPDES permit, overflow/bypass of equalization basins

67 Failure to immediately report mercury spill, and failure to file follow-up report within 5 days

68 Exceeding NPDES limits for oil, grease, BOD,COD,and TSS

69 Exceeding permitted average daily flow, TSS, and daily maximum TSS limits

70 NPDES violation for BOD, TSS, fecal coliform

71 Oil contaminants in arroyos, no permit to discharge

72 NPDES violations, elevated oil and grease levels

73 Failure to perform UST release investigation

74 Failure to perform UST release investigation

75 Wash rack spill into Back River

76 Exceeding pH, and oil and grease levels

77 Failure to timely respond to lack of monthly monitoring

78 Exceeding silver limit and failure to report

79 Failure to submit fuel release corrective action plan

80 High napthalene levels

81 High oil and grease, and visible sheen on surface water

82 High oil and grease

83 Steam condensate discharge into sewer without approval

84 Exceeded COD and mass limitations of NPDES permit

85 Exceeded COD and mass limitations of NPDES permit

86 WWTP effluent exceeds permit levels

87 Discharge of pollutants without a permit

88 Not obtaining wastewater construction permit

89 Exceeding lead

90 Exceeding technical review criteria for chromium

91 Exceeding zinc and chromium

92 Dumped prohibited discharge (JP-4) into sewer, failure to notify regulator

93 Exceeding silver limits

94 Failure to comply with 1985 agreement

95 Foam in outfall and residual chlorine exceeding limit

96 Exceeding limits for ammonia, nitrogen, and pH

97 Lab not certified

98 Exceeding ammonia and nitrogen limits

99 Failure to submit monitoring results and install monitoring well as required by NPDES permit

100 Exceeding district standards for oil/grease of petroleum origin

101 Exceeding oil/grease petroleum discharge concentration in wastewater

102 Discharge of silver exceeds limits

103 Incinerator ash discharged into storm sewer. No NPDES permit

104 Inadequate backflow protection

105 Inadequate records, and no chlorine analyzer

106 Failure to maintain slopes of stormwater retention area

107 Failure to construct stormswales IAW construction permit

108 Incomplete NPDES report

109 Fuel leak from base hydrant system

110 NPDES violations

111 Exceeding copper, zinc, phenol, and toluene

112 Violation of daily and average effluent limits of NPDES permit

113 Discharges exceeded permit limits.

114 Exceeded TTO and Chromium standards

115 Exceed limits in Toluene and benzene

116 Sampling data indicated pH out of compliance

117 Operational deficiencies, exceeding cyanide limits

118 Copper exceeded limits from effluent in printed circuit board shop

119 Cadmium exceeded permit levels from plating shop

120 Copper and zinc exceed limits - printed circuit board shop

121 Copper exceeded limits from effluent in printed circuit board shop

122 Copper exceeded limits from effluent in printed circuit board shop

123 Copper exceeded limits from effluent in printed circuit board shop

124 Failure to submit self-monitoring reports

125 Cadmium exceeded permit levels from plating shop

126 Copper exceeds limits from printed circuit board shop effluent

127 Copper and lead exceed limits from printed circuit board shop effluent

128 Cyanide exceeds limits from printed circuit board shop effluent

129 Exceeded TTO twice

130 Trichloroethane and carbon tetrachloride discharge

131 Exceeding oil/grease

NOVs by Reason Codes and Pollution Potential Codes

NOV #	Reason Code	10	20	30	40	50	60	70	Direct Pollution Release	Pollution Risk
1	20		1							1
2	30			1						1
3	20		1							1
4	20		1							1
5	10	1							1	
6	10	1							1	
7	10	1							1	
8	20,70		1					1		1
9	10	1							1	
10	50					1			1	
11	10,70	1						1	1	
12	70							1		1
13	50, 60					1	1		1	
14	10	1							1	
15	40				1				1	
16	10	1							1	
17	10	1							1	
18	50					1			1	
19	10	1							1	
20	70							1		1
21	10	1							1	
22	70							1		1
23	70							1		1
24	70							1		1
25	70							1		1
26	70							1		1
27	10	1							1	
28	70							1		1
29	20		1							1
30	50					1			1	
31	10	1							1	
32	10	1							1	
33	10	1							1	
34	10	1							1	
35	40				1					1
36	70							1		1
37	70							1		1
38	20, 70		1					1		1

NOV #	Reason Code	10	20	30	40	50	60	70	Direct Pollution Release	Pollution Risk
39	10, 20	1	1						1	
40	50					1			1	
41	10, 70	1						1	1	
42	50					1			1	
43	10	1							1	
44	10	1							1	
45	70							1		1
46	10	1							1	
47	50					1			1	
48	70							1		1
49	50					1			1	
50	10	1							1	
51	50				1		1		1	
52	50					1			1	
53	50					1			1	
54	50					1			1	
55	10	1							1	
56	10	1							1	
57	10	1							1	
58	10	1							1	
59	10	1							1	
60	10	1							1	
61	10	1							1	
62	10	1							1	
63	70							1		1
64	10	1							1	
65	20		1							1
66	10	1							1	
67	70							1		1
68	10	1							1	
69	10	1							1	
70	10	1							1	
71	50					1			1	
72	10	1							1	
73	70							1		1
74	70							1		1
75	50					1			1	
76	10	1							1	
77	70							1		1
78	10, 70	1						1	1	
79	70							1		1
80	10	1							1	
81	50					1			1	

NOV #	Reason Code	10	20	30	40	50	60	70	Direct Pollution Release	Pollution Risk
82	10	1							1	
83	50					1			1	
84	10	1							1	
85	10	1							1	
86	10	1							1	
87	50					1			1	
88	70							1		1
89	10	1							1	
90	10	1							1	
91	10	1							1	
92	50, 70					1		1	1	
93	10	1							1	
94	10	1							1	
95	10	1							1	
96	10	1							1	
97	20		1							1
98	10	1							1	
99	70							1		1
100	10	1							1	
101	10	1							1	
102	10	1							1	
103	50					1			1	
104	60						1			1
105	20, 60		1				1			1
106	60						1		1	
107	70							1		1
108	70							1		1
109	50					1			1	
110	10	1							1	
111	10	1							1	
112	10	1							1	
113	10	1							1	
114	10	1							1	
115	10	1							1	
116	10	1							1	
117	10, 40	1			1				1	
118	10	1							1	
119	10	1							1	
120	10	1							1	
121	10	1							1	
122	10	1							1	
123	10	1							1	
124	70							1		1

NOV #	Reason Code	10	20	30	40	50	60	70	Direct Pollution Release	Pollution Risk
125	10	1							1	
126	10	1							1	
127	10	1							1	
128	10	1							1	
129	10	1							1	
130	10	1							1	
131	10	1							1	
		74	10	1	4	19	5	29	96	35

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Vita

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13. ABSTRACT *(Maximum 200 words)*

In 1988, the General Accounting Office released the report Water Pollution: Stronger Enforcement Needed to Improve Compliance at Federal Facilities. The report claimed Federal Facilities were in noncompliance of environmental statutes at twice the rate of nonfederal facilities. The Air Force chain of command, from Chief of Staff to Commander and Chief, emphasize environmental compliance is expected at all Air Force Facilities. To enhance the Air Force's Clean Water Compliance Program, past noncompliance violations were compiled and an analysis performed assessing the value of the past violation trends as managerial tools in achieving compliance. The database chosen for the analysis was the Clean Water Act Notice of Violations (NOVs) received at Air Force Installations from Fiscal Year 1986 to mid-1994. The analysis revealed the following about the Air Force's past noncompliance: the most frequently observed violations were limits exceeded, unauthorized discharges, and administrative deficiencies; the majority of violations were not trivial infractions; the amount of NOVs received varied geographically; the varying regulatory agencies' enforcement policies differed significantly; and the amount of NOVs received varied over time. Although the research proved trends of past noncompliance are useful as a managerial tool to improve compliance, it also identified weaknesses in the Air Force's historical records of violations. The database should be improved to emphasize consistency, completeness, and accuracy.

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